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MOBILES 4 DEV

Mobiles for Development

This report presents the key findings of Mobiles for Development, a global research study commissioned by UNICEF.

October 2010

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Gamos

CTO COMMONWEALTH TELECOMMUNICATIONS ORGANISATION

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Executive Summary

The report presents the findings of Mobiles for Development, a research study commissioned by UNICEF to help the organisation understand the global mobile telephony landscape as it currently relates to advancing development, and as an area of significant future opportunities. Evidence for the report was gained during in-depth consultations with UNICEF operational staff, representatives of mobile operators in 14 Case Study Countries and thought leaders in both mobiles for development and the mobile industry. The report's recommendations are intended to help UNICEF refine its approach to engagement with regional and global mobile operators, and to help UNICEF contribute to greater effectiveness within the mobiles for development field as a whole.

Phenomenal Development of Mobile Telephony

Today, there are more than 5 billion mobile subscriptions – up from 720,000 in 2000 – and the mobile industry believes this number will exceed 6.2 billion by 2013. More people than ever before have access to mobile phones and many of them are those at the bottom of the economic pyramid (BoP) living in less developed countries.

Between 2000 and 2008, the rate of growth in mobile penetration was fastest in Sub-Saharan Africa, where it rose from just over 1% to over 31%. However, the region's penetration rate remains the lowest in the world, indicating there is still room for growth.

The most important driver of mobile growth is the wave of liberalisation that has led to 87% of the world's mobile markets being either partly of fully liberalised. Competition among mobile operators has resulted in the rapid extension of mobile networks, falling prices of services and mobile handsets, and innovative business models that have reduced operators' capital and operating expenditure. Given efficient markets, it is estimated that by 2015, only 4.4% of populations across Africa will live in the "coverage gap", and will need some kind of support to access networks. However, rural areas are unlikely to get 3G coverage in the near future and will have to rely on 2G applications to provide internet and multimedia services.

Common themes in business strategies of regional operators include network extension into rural areas, network upgrading (focused on urban areas), innovative applications, content, and services, alongside convergence. A number of operators have identified youth as a strategic market segment to target.

Although the most popular mobile applications are caller ringback tones and internet access, operators have begun offering "infotainment" services – information-based media content that also includes entertainment content so as to enhance popularity with audiences – and some operators have provided commercial services that have a developmental impact. M-PESA, launched by Safaricom in 2007, is a good example – by 2009 ,it had given 6.5 million Kenyans, most of whom were unbanked, access to financial services for the first time.

Given UNICEF's equity-based approach that focuses on the most isolated and vulnerable groups, mobile-based services are likely to prove valuable in achieving programming goals. Mobile tools can identify the most deprived

children and communities, provide cost effective interventions, overcome bottlenecks to services, and enable communities to maximise the impact of available resources.

Mobiles for Development Landscape

There are increasing numbers of mobile-based projects, and donors such as the World Bank infoDev and the Bill and Melinda Gates Foundation continue to invest in mobiles for development (M4D). A scan of projects in the 14 focus countries for this study indicated that the most common sectors for investment are health, socio-economic development, and agriculture.

There is evidence that governments are interested in using mobiles as service providers, yet there remain few actual manifestations of such intent in developing countries. Most examples are found in Asia, where concepts have been proven, and more mature mobile markets are seeking new revenue streams.

The growing focus on services was summed up by the CEO of one operator: "The strategy going forward will focus on taking a bigger share of the customer's entire wallet, not just his or her telecoms wallet".

Up to this point, mobile operators have tended to support M4D through concessions such as free or subsidized shortcodes and SMS tariffs, which have been negotiated as part of Corporate Social Responsibility (CSR) programmes. A feature of CSR initiatives in health, education, and child protection, for example, is that they rarely exploit technical resources held by companies. CSR departments tend to be poorly integrated with the core business, and have small budgets and limited decision-making power. Some operators would like to develop services that have a developmental impact, but also a return on investment – M4D that is revenue generating and scalable. As one interviewed thought leader in the M4D space indicated, operators are happy to work towards achieving development goals but only by "doing business as usual".

All public outputs are available on the study's website: www.Mobiles4Dev.com.

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Acronyms

ADSL	Asymmetric Digital Subscriber Line
ARPU	Average Revenue Per User
BoP	Bottom of the Pyramid
BTS	Base Transceiver Station
CAGR	Compound Annual Growth Rate
CAPEX	Capital Expenditure
CDMA	Code Division Multiple Access
CEE/CIS	Central and Eastern Europe and the Commonwealth Independent States
Codec	Compression-Decompression
CRBT	Caller Ring-Back Tones
CSR	Corporate Social Responsibility
CTO	Commonwealth Telecommunications Organisation
DSL	Digital Subscriber Line
DOT	Force Digital Opportunities Task Force
EDGE	Enhanced Data rates for GSM Evolution
GDP	Gross Domestic Product
GPRS	General Packet Radio Service
GPS	Global Positioning Systems
GSM	Global System for Mobile communications
GSMA	Global System for Mobile communications Association
HSDPA	High Speed Downlink Packet Access
ICT	Information Communication Technologies
ICT4D	Information Communications Technologies for Development
IMS IP	Multimedia Subsystem
IMF	International Monetary Fund
IPTV	Internet Protocol Television
IT	Information Technology
ITU	International Telecommunications Union
IVR	Interactive Voice Recognition
LAN	Local Area Network
LDCs	Less Developed Countries
M4D	Mobiles for Development
MDCs	More Developed Countries
MDGs	Millennium Development Goals
MENA	Middle East and North Africa
MMS	Multimedia Messaging Service
MoH	Ministry of Health
NGN	Next Generation Networking
NGO	Non-governmental Organization
OECD	Organization for Economic Cooperation and Development
OPEX	Operational Expenditure
PCR	Polymerase Chain Reaction
PPP	Public Private Partnership

PSTN	Public Switched Telephone Network
SMS	Short Message Service
TRAI	Telecommunications Regulatory Authority of India
UN	United Nations
USAF	Universal Services Access Fund
VAS	Value-Added Services
WAP	Wireless Application Protocol
WiFi	Wireless Fidelity
WILAN	Wireless Local Area Network
WiMax	World Wide Interoperability for Microwave Access
2G	Second Generation
3G	Third Generation

1. Introduction

This report presents the findings of the Mobiles for Development study, which aims to help UNICEF and the wider development community act upon lessons learned from mobiles for development (M4D) initiatives and improve their use of mobile telephony. Amongst other things, the findings from the study should assist UNICEF to position itself effectively in the growing M4D community. It should also help UNICEF and other development organisations engaging with the use of mobiles for development improve engagements with regional and global mobile operators. Improving how UNICEF and others in the M4D community work with mobile operators should result in the more effective use of mobiles in development programming and release their undoubted potential to help surmount the most pressing development challenges.

The report is structured as follows:

Section 2 outlines the study's purpose and objectives.

Section 3 describes the methodology employed to fulfill the purpose and meet the objectives.

Section 4 gives a brief overview of the impact of mobiles on socio-economic development and how they can facilitate equity-based programming. It also highlights key trends in mobile telephony sector, including the development of mobile telephone and Internet usage. It also details common themes in mobile operators' business strategy and corporate social responsibility activities.

Section 5 presents the result of the external mapping exercise, which involved analysis of the mobile applications environment in 14 Case Study Countries. The section draws heavily on evidence provided during consultations with representatives of mobile operators in each country.

Section 6 outlines steps UNICEF could take to create a framework for robust engagement with operators.

2. Study Objectives, Tasks, and Methodology

2.1. Purpose

The purpose of the Mobiles for Development study is to help UNICEF, and the wider development community, understand the global mobile landscape both as it currently relates to advancing development and as an area of significant future opportunities.

In addition, the study aimed to, where appropriate, recommend innovative approaches for strategic, long-term collaborations with mobile service providers to advance UNICEF's goals. Ultimately, therefore, the recommendations are intended to help UNICEF refine its approach to engagement with the mobile sector on a global and regional level, and to get the best value for the organization at a country level for particular projects and programmes.

2.2. Study Objectives

In order to achieve the study's purpose, the team fulfilled a number of objectives. These were to:

1. Undertake an "external mapping" exercise in order to develop a brief overview of trends in the mobile telephone sector, especially in respect of:
    - mobile penetration and subscriber rates
    - internet penetration
    - price of mobile services
    - regional operators' business strategies [1]
    - regional operators' corporate social responsibility (CSR) focuses
    - services
    - mobile infrastructure
2. Assess the M4D environment in 14 UNICEF Case Study Countries in order to identify key issues concerning the development and use of M4D initiatives in each country[2]. These issues include what type of non-voice and non peer-to-peer SMS mobile services are most popular and why; key challenges to developing and using mobile applications, content and services; the capacity of the M4D community; operators' attitudes towards developing M4D services; operators' current corporate social responsibility (CSR) activities and their attitudes to working with UNICEF and other development organizations

[1] Regional operators are those companies with two or more national mobile operators in one or more UNICEF focus regions – East and South Africa, West and Central Africa, CEE/CIS, Middle East and North Africa, South Asia, East Asia and the Pacific, Latin America and the Caribbean.

[2] 14 case study countries: Ghana, Sierra Leona, Sri Lanka, Suriname, Uganda, Zambia, Iraq, Egypt, Kosovo, Philippines, Malawi, Mongolia, Lao PDR, and Bangladesh.

3. Produce a project database of M4D applications, content, projects and services being used in each of the 14 Case Study Countries

4. Undertake an "internal mapping" exercise in order to identify UNICEF M4D initiatives and the lessons learned in respect of how projects are initiated and developed and UNICEF's engagements with its partners in M4D initiatives - governments, non-governmental organisations (NGOs), community-based organisations (CBOs), technology partners, and mobile operators

5. Develop 10 M4D case studies that provide important insights into the development of M4D applications, content, projects and services. The M4D cases studies are found in an additional report to this, entitled UNICEF M4D Case Studies.

6. Develop a website for this study that acts as a repository of knowledge gained during the study and a tool for stakeholder engagement. The above-mentioned resources can be found at www.Mobiles4Dev.com.

2.3. Study Methodology

The study was undertaken in two phases, using a range of qualitative and quantitative techniques.

During Phase One, the team:

- Undertook a desk-based analysis of free and openly available ICT statistics and reports in order to develop the overview of mobile trends in mobile penetration rates, mobile subscriber numbers and internet usage
- Reviewed the 2008/2009 annual reports and CSR reports of 17 regional mobile operators in order to identify trends in their business strategies and CSR activities
- Carried out 36 semi-structured, in-depth telephone consultations with representatives of mobile operators in the 14 Case Study Countries to identify which non-voice, non peer to peer SMS mobiles services are most popular and why, assess the capacity of the mobile development community, operators' attitudes to M4D services, the CSR initiatives of each operator, and operators' views about working with UNICEF
- Held semi-structured telephone consultations with UNICEF operations staff to learn about UNICEF's experience initiating M4D projects; its partnerships with Ministries, technical resources and other development stakeholders, as well as its experience working with mobile operators.

Phase Two involved:

- Desk-based analysis of secondary sources
- Telephone consultations with leading figures in the ICT for development sector, independent ICT consultants and senior mobile telephone executives
- Telephone consultations with UNICEF staff to better understand how mobiles can be used for programming and the challenges to UNICEF's further use of mobiles
- Analysis of 10 Mobiles for Development initiatives (five UNICEF and five in the broader M4D landscape) and consultations with their key constituents in order to develop 10 Mobiles for Development Case Studies.

3. Socioeconomic Development Impact of the Mobile Platform

This section of the report briefly highlights the positive impact mobiles are having on socio- economic development and their potential to facilitate UNICEF's equity-based approach to programming.

3.1. Impact of Mobiles on Socio-Economic Development

Evidence of the positive impact mobiles have upon socio-economic development is unequivocal. At the macroeconomic level, mobiles increase gross domestic product (GDP) as well as the foreign direct investment that less developed countries often struggle to attract.

Evidence of the positive impact mobiles have on socioeconomic development is unequivocal. An assessment of the impact of mobiles in India noted that, having achieved a critical penetration rate of 25%, every 10% increase in penetration resulted in a 1.2% increase in a state's economic growth.

An assessment of the impact of mobiles in India noted that, having achieved a critical penetration rate of 25%, every 10% increase in penetration resulted in a 1.2% increase in a state's economic growth.[3] Research by Ericsson and Zain on the impact of mobiles in Sudan concluded that a 1% increase in mobile penetration caused a 0.12% increase in the country's GDP growth rate, due partly to the greater productivity and efficiency of small businesses which benefitted from improved information flows.[4]

Beyond the macro-economic indicators, evidence suggests the enhanced communication and information flows that mobiles provide have significant impact on users' livelihoods, especially those most vulnerable and traditionally hard-to-reach. Indeed, the mobile has become essential for billions of those in less developed countries, transforming their lives. It has helped reduce vulnerability and increase opportunities, improve social empowerment, reduce the need to undertake costly and sometimes dangerous travel, increase access to health and education services, as well as create more employment and business opportunities.

Many of these benefits are a result of the provision of basic voice services, but there is a growing realisation that the mobile can be used for much more. The seemingly inexorable growth of mobile telephone usage, the increasing sophistication of mobile networks, devices and applications has created a wealth of opportunities for the supply of

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[3] Vodafone Group. 2009. India: The Impact of Mobile Phones. Moving the Debate Forward [online]. No. 9. Available at: http://www.vodafone.com/etc/medialib/public_policy_series.Par.56572.File.dat/public_policy_series_9.pdf [Accessed October 5, 2010]

[4]Deloitte. 2009. Economic Impact of Mobile Communications in Sudan [online]. Ericsson and Zain. Available from: http://www.ericsson.com/res/thecompany/docs/sudan_economic_report.pdf [Accessed 5th October 2010].

non-voice mobile services and ensured that all mobiles phones, even the most basic entry-level handsets, are now viewed as more than a tool for talking.

Mobile operators have been first to seize the opportunities, using the mobile to supply a host of commercial services that can mainly be described as infotainment, a mix of entertainment and information services. Some operators are providing commercial services that have a direct impact on socio-economic development. Mobile banking services, for example, have provided millions of unbanked people living in less developed countries with the opportunity to use financial services. The most well-known of these is M-PESA, which was partly funded by the UK Department for International Development (DFID) during its development and launched by Kenya's Safaricom, an affiliate of Vodafone, in 2007. By 2009, less than two years after its launch, 6.5 million Kenyan M-PESA users had m-financial services. There are now many examples of the mobile platform enabling and facilitating development goals; farmers and fishermen using mobile phones to get information on market prices and demand to ensure they maximise their income potential; development organisations using mobile phones to improve data gathering, facilitate election monitoring, as well as governments using the mobiles for service delivery.

3.2. Mobiles in Equity-Based Programming

It is clear that mobiles' inherent characteristics can help produce many benefits and better development outcomes – simply by helping people to communicate better through voice and peer-to-peer SMS. Yet, as M-PESA and other M4D initiatives have shown, mobiles can have a multiplier effect, improving the impact of development efforts when M4D applications, content and services are employed. This multiplier effect will be critically important and highly beneficial for UNICEF as it seeks to target the most vulnerable with an equity-based approach to programming in the little time left before 2015.

UNICEF has developed five initial policy considerations pertinent to adopting an equity-based approach and mobile phones have the potential to feed directly into achieving the policies and objectives that may eventually stem from them.[5] Indeed, mobiles are already being used to:

1. **Identify the most deprived children and communities** – UNICEF and other development organisations have proven that mobiles can be used to improve the data collection processes immensely, not only extending the width and breadth of data collection, but also the speed at which data can be collected, collated, analysed, and the results acted upon.[6]

2. **Invest in proven, cost effective interventions** – mobiles have enabled some development organisations and governments to provide cash transfers directly to beneficiaries, which has proved a cost-effective means of intervention. Governments have also used the mobile to reduce the cost of public service provision, therefore making services cost effective.[7]

3. **Overcome the bottlenecks and encourage people to use services** – where available, mobile phone services are being used to provide education and health services that marginalised groups, including those in hard-to-reach areas, have found difficult to access. For example, mobiles -- by nature of being flexible,

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[5] UNICEF, 2010. Narrowing the Gaps to Meeting the Goals.

[6] See 'M4D Case Study: Monitoring Supplies'.

[7] See 'M4D Case Study: Mobile Birth Registration' for a case of how mobile have improved efficiencies in existing systems.

personal devices -- have helped overcome cultural and social barriers that women and children sometimes face when seeking access to services like education.[8]

4. **Partner with communities** – mobiles have been used to promote behavioural change through improved engagement in those communities which cannot get access to good, well resourced and adequately staffed facilities.[9]

5. **Maximise the impact of available resources** - mobiles help reduce costs for organisations by saving them time and manpower. Mobiles also do the same for users, saving them time, peripheral expenditures such as those for travel, as well as direct costs for using services. These savings all help the most vulnerable access essential services which may have been unaffordable up to now.[10]

Ensuring the most vulnerable, who often live in hard-to-reach, remote areas, have affordable mobile access is important for all those aiming to leverage M4D in an equity-based approach. Thankfully, trends identified in the next section of this report indicate most people will have access to mobile services by 2013.

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[8] See 'M4D Case Study: BBC Janala' for examples of women using mobiles for learning.

[9] See 'M4D Case Study: Freedom HIV/AIDS'.

[10] See 'Grameen Phone Health Line': http://mobiles4dev.cto.int/content/grameen-phone-health-line

4. Overview of Regional Trends in the Mobile Sector

This section of the report provides a brief overview of trends in mobile telephony.[11] It was developed using free and openly available ICT statistics for 2000 to 2008, as well as regional operators' annual and corporate social responsibility reports. Specific reference is made to trends in mobile telephone penetration (the number of mobile subscribers per 100 inhabitants) and usage, price of services, internet penetration, as well as corporate social responsibility activities and business strategy.

It begins by highlighting the phenomenal, worldwide growth of mobile telephony and moves on to examine the nature of this growth in UNICEF regions: the African regions, Asia Pacific, CEE/CIS, MENA, and Latin America and the Caribbean. Price is a key determinant of mobile usage and this section suggests the global trend is one of falling prices for mobiles services. The analysis of mobile telephone growth identifies key drivers of mobile phone growth and some of the remaining challenges, including the hurdles concerning rural access.

Internet growth between 2000 and 2008 was relatively poor compared to mobile telephony. This section details trends in global Internet growth, and takes a more granular look at trends in each of the UNICEF regions. It identifies some of the key drivers of Internet growth, as well as some of the remaining challenges to increasing Internet penetration. Of course, Internet can be disaggregated between normal, dial-up Internet and much faster, broadband Internet; this section contains some analysis about the growth of broadband Internet and prospects for the future.

The section concludes by identifying common themes in the business strategies and CSR activities of regional mobile operators. It suggest most are following similar business strategies and undertaking similar CSR activities, as they try to acquire new customers and retain existing ones in increasingly competitive markets.

4.1. Overview of Mobile Telephony Trends

In June 2010, the world achieved a notable milestone when the number of mobile subscribers globally reached 5 billion, a full six months before many analysts had predicted. Yet the early passing of this milestone did not surprise many who have followed the development of mobile telephony over the last decade. It simply provides further evidence of the rapid and somewhat unpredictable development of mobile telephony.

Over the last decade, global mobile telephony growth has been phenomenal. It is now the world's principal means of communication, with its use now far greater than more traditional fixed-line telephony. Between 2000 and 2008,

[11] The data used for the analysis in this section is largely derived from the free and openly available statistics made available by the ITU at http://www.itu.int/ITU-D/ict/statistics/index.html.

world mobile penetration rose from 12% to 59%.[12] Much of the growth has been driven by increasing usage in less developed countries, most notably those in Africa and Asia. Between 2003 and 2008, African mobile subscriptions grew at a compounded annual growth rate (CAGR) of 47.7% while industrialized countries grew at a rate of 9.4%.

For those focused on achieving the MDGs, the growth of mobile telephony in less developed regions provides vivid and enthusing examples of less developed countries playing catch up. Yet there are differences in levels of growth between less developed regions and continuing disparities in the mobile penetration rates of countries in each region. Indeed, while the trend is one of growth, it has not been uniform.

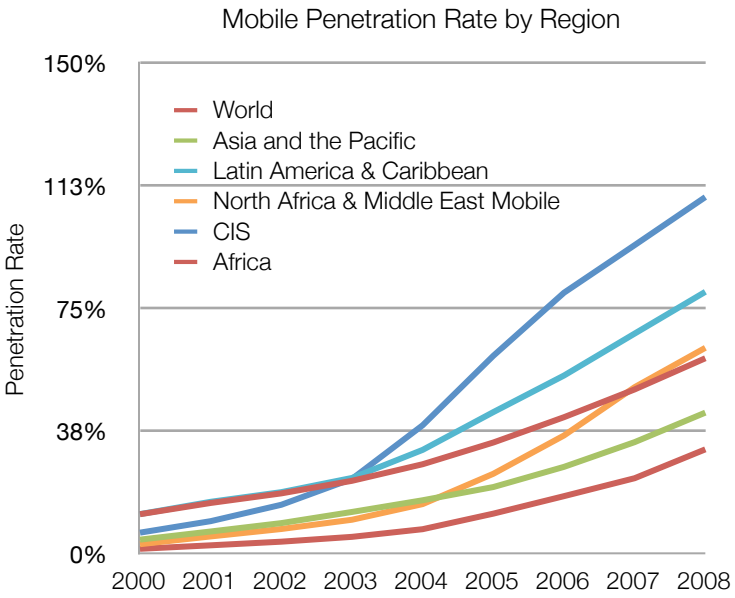


Figure 4-1 Mobile Penetration Rates by Region, 2000-08

4.1.1. Trends in African Mobile Telephony

The last decade saw Sub-Saharan Africa (SSA) take monumental strides, providing many of its 700 million inhabitants with phone services for the first time. Analysis of SSA mobile telephony highlights a trend of increasing penetration and therefore falling ICT inequality between Africans living in the region, as well as between Sub-Saharan Africans and those in more developed regions. By the end of 2008, Africa had 248 million mobile subscribers, giving it a penetration rate of 32%, up from 1.5% in 2000. Although the continent's 2008 penetration rate was some way behind the world average of 59.3%, Africa's growth in penetration has been far quicker than the world average. Between 2003 and 2008, Africa's compound annual growth rate of 47%,

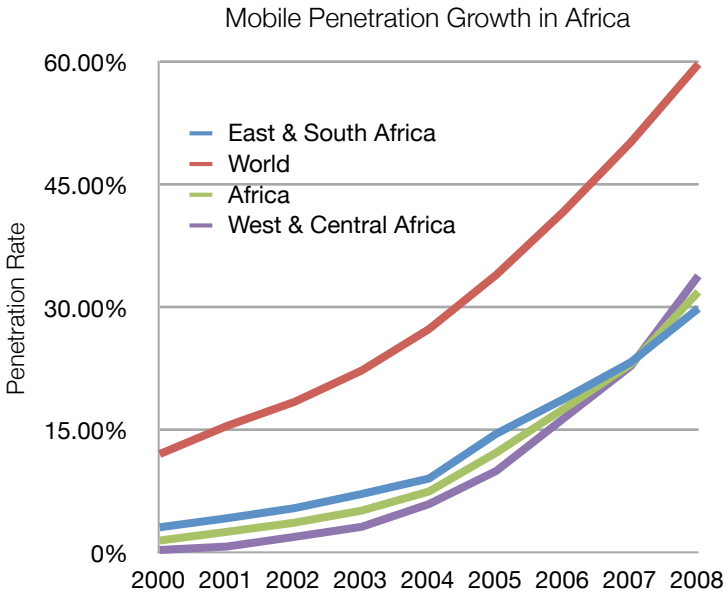
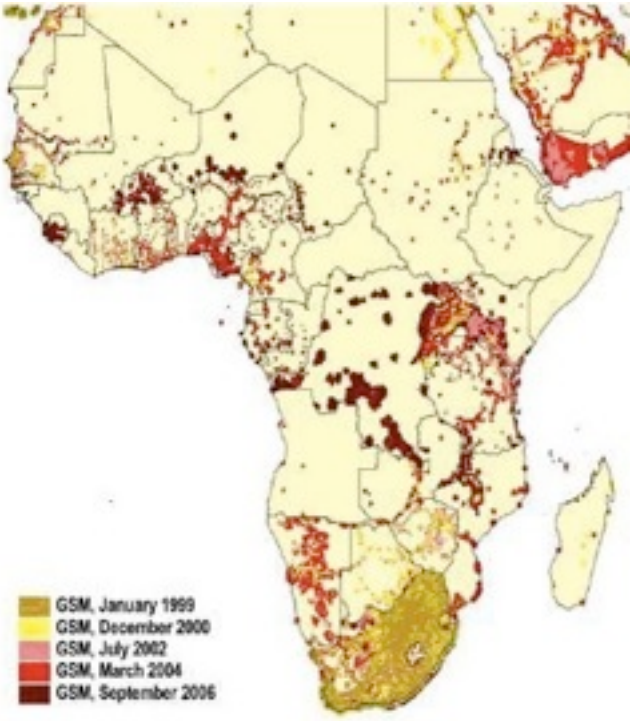


Figure 4-2 Mobile Penetration Rates in Africa, 2000-08

[12] Penetration rates are number of subscribers or users per 100 inhabitants.

was much higher than the rest of the world.

The rapid growth of mobile telephony in SSA has helped reduce levels of the digital divide between its inhabitants and those in more developed regions like Western Europe and the USA, it has also reduced ICT inequalities between Sub-Saharan Africans themselves. In 2000, South Africa accounted for 74% of mobile subscriptions, despite only accounting for 0.01% of the continent's population. Yet by 2008, its share of Africa's subscribers was 19%, despite nearing 100% mobile penetration. The rapid spread of mobile networks has been an important driver of increased access and therefore, the reduced concentration of subscribers. In 2008, 58% of Africans were within reach of a mobile signal, up from 40% in 2006.



Source: Buys, Dasgupta, Thomas and Wheeler (2008)

Figure 4-3 Africa Coverage Map

Analysis of mobile telephony growth in SSA sub-regions indicates that, between 2000 and 2008, West and Central Africa caught up and overtook East and Southern Africa in respect of mobile penetration. In 2000, the penetration rate of East and Southern Africa was 3%, almost 10 times higher than the West and Central African rate of 0.33%. Yet between 2000 and 2008, West and Central Africa grew at a faster rate than the rest of Africa and the world. By 2008, it had a penetration rate of 34% and 133 million subscribers, compared to East and South Africa's 30% penetration and 114 million subscribers.

Despite SSA's impressive growth in the last decade, disparities between the best and worst performing countries are marked. Amongst East and Southern African countries, the Seychelles held its position as the number one ranked country in terms of penetration between 2000 and 2008 and had a penetration rate of 112% by the end of the period. The lowest ranked country was Eritrea, which had a penetration rate of 2.2% in 2008. In West and Central Africa, Gabon was the number one ranked country in 2008, with 89% penetration. The Central African Republic was the lowest with 3.5% penetration in 2008.

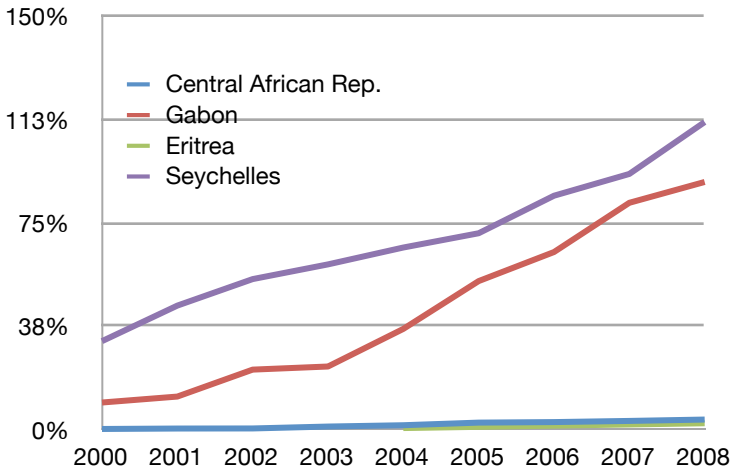


Figure 4-4 Highest and Lowest Performing Countries in terms of Mobile Penetration, African Sub-Regions, 2000-08

A number of SSA countries make up the 14

UNICEF Case Study Countries. In East and Southern Africa, Zambia ranked 10th out of 21 countries in the region, with 28%, Uganda 11th with 27%, and Malawi 17th with 12%. In West and Central Africa, Ghana ranked 8th highest out of 24 countries in the region in 2008 with 50%, and Sierra Leone at 14th with 18%.

4.1.2. Trends in Asian and the Pacific Mobile Telephony

Like the rest of the world, the Asia Pacific region also saw rapidly increasing mobile penetration between 2000 and 2008. It witnessed continuous growth in mobile subscriptions, which increased six times between 2000 and 2007, resulting in an additional 1.1 billion subscribers over the period, more than any other region. This increase can largely be attributed to the region's huge population and the unprecedented increase in mobile phone usage in India and China. In the past few years, these two Asian giants have led a two-horse race to be the fastest growing countries in the world in terms of subscriber numbers. By 2008, 700 million of the region's 1.5 billion subscribers were living in India or China. Despite its world-leading growth in subscriber numbers, the region's penetration rate was still slightly lower than that of the rest of the world in 2008. It stood at 43%, while the global rate was 58%.

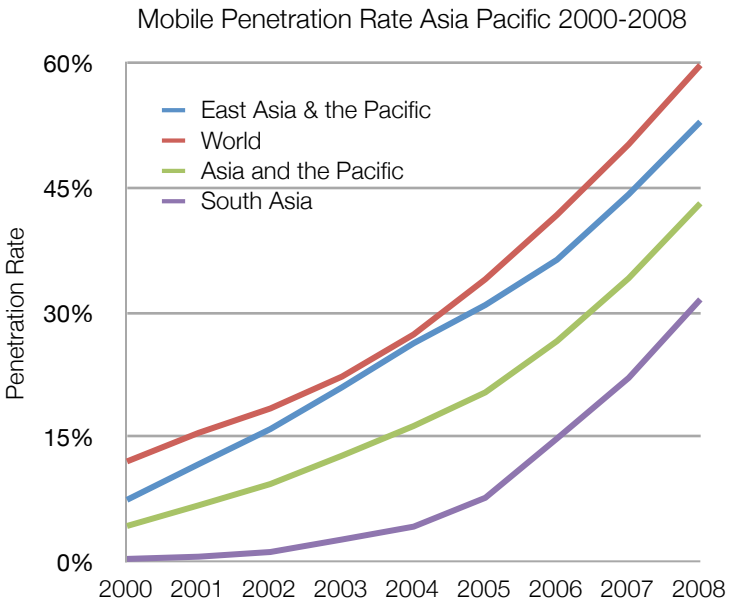


Figure 4-5 Mobile Penetration Rates in Asia Pacific, 2000-08

When examining the disaggregated data for the two UNICEF regions that make up the Asia Pacific region – East Asia and the Pacific and South Asia – differences in growth rates and overall penetration levels are apparent. Between 2003 and 2008 South Asia's CAGR of 66.6% was greater than East Asia and Pacific's CAGR of 21%. By 2008, East Asia and Pacific's penetration rate stood at 53%, in marked contrast to that of South Asia's 31.6% rate. South Asia had a significantly lower penetration rate of 0.33% in 2000, compared to East Asia and Pacific, with 7.44%.

Disparities between countries in each sub region of the continent do exist. In the East Asia and Pacific region, Malaysia was the highest ranked country in 2008, with a 102% penetration rate, up from 22% in 2000. The lowest ranked country in 2008 was Myanmar, with 0.74% penetration. In South Asia, the Maldives was the highest ranked country, with a penetration rate of 142%, and Nepal the lowest at 15%.

Of the Case Study Countries, the Philippines had the 4th highest penetration rate out of the 26 countries in the East Asia and Pacific region with 75%, followed by Mongolia in 7th place with 67%, and Lao PDR in 14th with 33%. In South Asia, Sri Lanka ranked 2nd out of 8 countries, with a penetration of 55%, and Bangladesh 7th with 28%.

4.1.3. Trends in Middle East and North Africa Mobile Telephony

In the Middle East and North Africa region, the number of mobile subscribers increased by 25 times between 2000 and 2008, reaching 255 million subscribers by 2008. Although the growth has been slower than other regions, penetration rates have increased dramatically. In 2007, the region's penetration rate was on par with the world rate of 50%, but by 2008, it reached 63%, higher than the world rate of 59%.

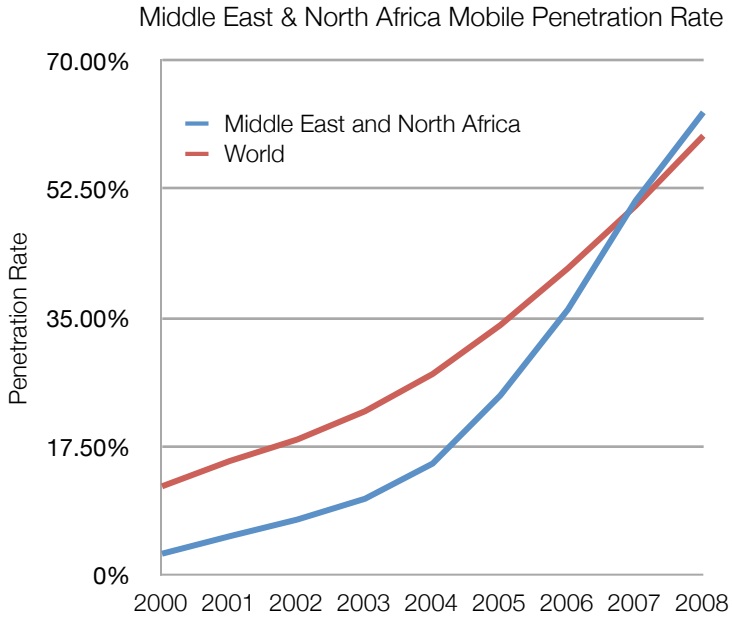


Figure 4-6 Mobile Penetration Rates in MENA, 2000-08

Like each of the other regions, differences exist in the levels of penetration between MENA countries. Unsurprisingly, those countries with higher levels of GDP per capita saw higher penetration between 2000 and 2008. For example, the UAE was the number one ranked country in the region in 2008, with a penetration rate of 208%, up 41% from 2000. At the other end, Djibouti had a 13% penetration in 2008, up 12.7% from the extremely low rate of 0.03% in 2000. Of the case study countries, Iraq ranked 13th out of 20 countries with 58% penetration in 2008 and Egypt was 14th highest in the region with 50%.

4.1.4. Trends in Latin America and the Caribbean Mobile Telephony

By 2008, there were more than 456 million mobile subscribers in Latin America and the Caribbean, up from 62 million subscribers in 2000. The region's overall penetration rate reached 80% in 2008, with many having exceeded the 100% penetration mark. Like other regions, the rapid extension of mobile networks contributed hugely to the growth. Indeed, by 2008, 90% of people in the region had access to a mobile signal.

Although there are differences in the penetration rates of Latin American countries in the region, they are not as marked as those of other regions. Argentina was the highest ranked country in 2008, with a penetration rate of 116%, while Costa Rica was the lowest at 41%. Amongst the Caribbean countries, there is more uniformity in penetration levels; nine of the 16 Caribbean countries had a 100% penetration rate or higher in 2008, with only four below 50%. Barbados had the highest penetration rate at 160%, and Cuba, which is yet to liberalize its market, had the lowest rate at 3%. Like Myanmar in the East Asia region, and Eritrea in Africa, Cuba provides evidence of a correlation between a low level of democracy, a lack of liberalisation and low mobile penetration levels.

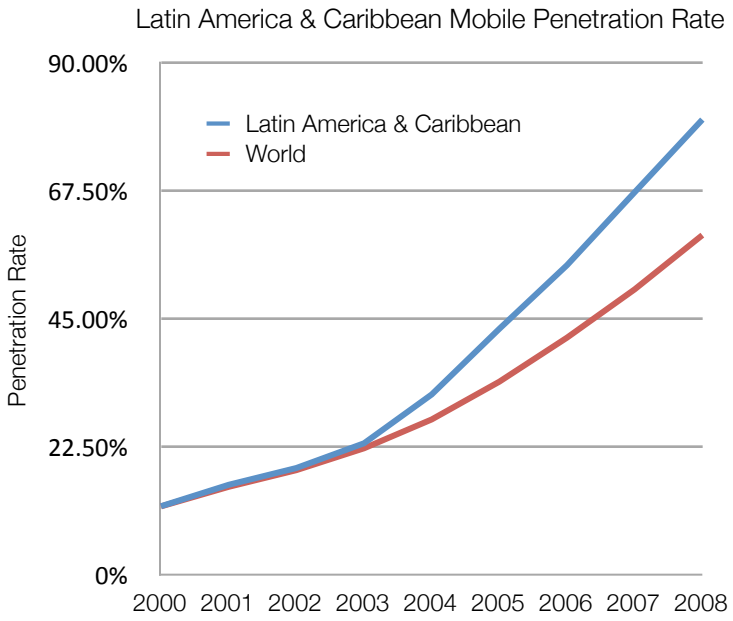


Figure 4-7 Mobile Penetration Rates in Latin American and Caribbean, 2000-08

4.1.5. Trends in CEE/CIS Mobile Telephony

Mobile telephony in the CEE/CIS region had the highest penetration rate in the world in 2008. It grew, from 6% penetration rate in 2000 to 109% in 2008. The number of mobile subscribers increased seven times from 26 million to 440 million, two times the global rate.

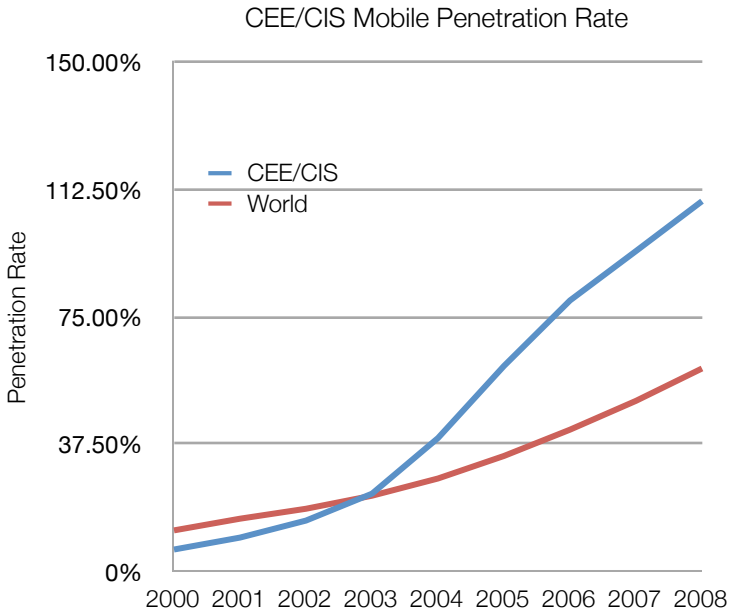


Figure 4-8 Mobile Penetration Rates in CEE/CIS, 2000-08

The region's growth in penetration was led by rapid growth in Russia and the Ukraine. Both countries have mobile subscriptions that exceed the number of inhabitants. Russia exceeded the growth of the majority of other CEE/CIS countries, due to relatively large investments in network infrastructure, increased political and economic stability, foreign investment and greater competition. It also differs from the other states in the region because of its larger landmass, population and economy. These factors have combined to make Russia the world's fourth largest mobile market; between 2006 and 2008, Russia's penetration rate soared from 105.7% to over 140%, giving it 200 million subscribers.

There are significant differences in mobile penetration across countries in the CEE/CIS region. Russia's growth and penetration rate was in stark contrast to Turkmenistan, the lowest ranked country in the region, which had a

penetration rate of 22% in 2008. Kosovo is the only Country Case Study in the region, and had a 75% penetration rate in 2009.[13]

4.1.6. Trends in Mobile Telephony Prices

The cost of services is an important determinant of usage. Although the data is limited, analysis of the ITU mobile price basket data indicates a global trend of decreasing prices. Between 2008 and 2009, 125 countries saw reductions, some as much as 80%.[14] The furthest reduction was in Azerbaijan, where the value of the mobile price basket fell by 81%. The largest increase was in Holland, with a rise of 54%.

Region	Mobile Penetration			Actual Mobile Basket USD		Mobile Basket Reduction Price USD
	2000	2004	2008	2008	2009	2008-2009
WCAR	0.33	5.94	33.85	14.05*	10.84	3.21
ESAR	3.10	9.06	29.86	12.94*	10.11	2.83
MENA	2.89	15.16	62.93	9.03*	7.53	1.50
EAPR	7.44	26.28	52.92	8.73*	7.15	1.58
ROSA	0.33	4.21	31.55	2.68*	1.62	1.06
TACRO	12.09	31.73	80.05	12.69*	10.21	2.48
CEE/CIS	6.43	39.25	109.01	14.66*	8.66	5.99
World	**12.06**	**27.34**	**59.74**	**13.17***	**10.75**	**2.43**

Table 4-1 Mobile Penetration and Regional Mobile Price Baskets

*some country values missing

Every region witnessed a drop in the value of its price basket, but the CEE/CIS experienced the most significant fall when the price basket declined by 40.9%, from $14.66 in 2008 to $8.66 in 2009. The region with the smallest drop in prices was MENA, with a 16.6% fall from $9.03 to $7.53. Nominally, South Asia had the lowest pricing in 2009 at $1.62, but had the second most significant price fall – 39.5%. The region with the most expensive price basket in 2009 was West and Central Africa with $10.84, followed closely behind by Latin America and the Caribbean with $10.21.

Of the Case Study Countries, Sri Lanka had the furthest fall between 2008 and 2009, with 67% decrease from $2.76 to $0.90. Uganda had the second largest price decrease, 38% or $3.07, while Ghana, Malawi, and Egypt had reasonable reductions of 36%, 22% and 20% respectively.

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[13] Data obtained from Kosovo Telecommunications Regulatory Authority.

[14] The mobile cellular sub-basket represents the monthly cost of a basic mobile cellular subscription. It consists of 25 prepaid outgoing calls per month (on-net, off-net and to a fixed line), two in predetermined ratios, plus 30 Short Message Service (SMS) messages. While prepaid tariffs tend to be more expensive (per minute) than postpaid tariffs, they were chosen because they are often the only payment method available to low-income users who might not have a regular income and will thus not qualify for a postpaid subscription based service. International Telecommunication Union (2009) *Measuring the Information Society: The ICT Development Index* [online]. Geneva, ITU. Available from: http://www.itu.int/net/pressoffice/backgrounders/general/pdf/5.pdf [Accessed 21st September 2010]

The smallest decline in price was experienced by Suriname, which only saw a 2% price fall between 2008 and 2009, from $9.44 to $9.23. The Philippines, Lao PDR, Bangladesh and Zambia had relatively small prices decreases, ranging from 7 to 13%. Iraq, Kosovo and Sierra Leone have no mobile basket price data and Mongolia only had a 2009 price basket value of $3.57. By 2009, the highest priced mobile basket was Zambia at $12.72. The lowest was Sri Lanka at $0.90, significantly lower than the world's average of $10.75.

Country Case Studies	Mobile Penetration			GDP per Capita USD	Actual Mobile Basket Reduction Price USD	
	2000	2004	2008	2009 (est.)	2008	2009
Bangladesh	0.2	1.85	27.9	1600	1.46	1.32
Egypt	1.94	10.09	50.62	6000	5.19	4.14
Ghana	0.67	7.91	49.55	1500	6.69	4.26
Iraq	0	2.08	58.24	3600	..	..
Kosovo	0	0	0	2500*	..	..
Lao PDr	0.23	3.53	32.59	2100	3.77	3.47
Malawi	0.41	1.67	12	900	13.87	10.80
Mongolia	6.47	17.03	66.76	3200	..	3.57
Philippines	8.31	39.25	75.39	3300	6.68	6.22
Sierra Leone	0.28	2.39	18.14	900	..	..
Sri Lanka	2.29	11.42	55.24	4500	2.76	0.90
Suriname	8.79	43.10	80.76	8800	9.44	9.23
Uganda	0.52	4.19	27.02	1300	12.87	7.95
Zambia	0.94	4.05	28.04	1500	14.65	12.72

Table 4-2 Mobile Price Baskets in Case Study Countries

4.1.7. Key Drivers in Mobile Telephony Growth

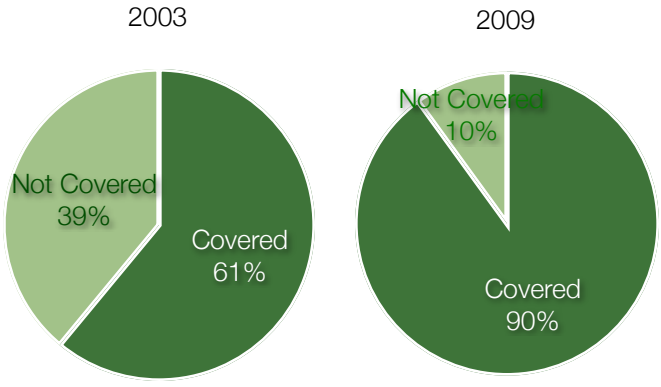

Figure 4-9 Percentage of the World's Population Covered by a Mobile Signal in 2003 and 2009

The huge global growth of mobile telephony can be attributed to a number of key drivers that have made services more widely available and affordable than ever before. The drivers have led many of those at the bottom of the pyramid (BoP) to become mobile subscribers. Until recently, many BoP users, especially those in hard-to-reach rural areas, were perceived by many operators as being unable to afford mobile services.

These key drivers have been identified as;

- **The liberalization of markets** has allowed

highly competitive mobile operators to establish operations and engage in increasingly free and open competition. This has contributed to the rapid extension of mobile networks and the falling price of services, as these operators seek to attract new customers and retain existing ones. While this driver has been important in all markets, its effect has been most widespread in Africa, Latin America and the Caribbean, and the Middle East and North Africa. By 2009, 87% of the world's mobile markets – as defined by percentage of total countries – were partially or fully liberalised.

- **The advent of targeted policy and regulation**, which has provided mobile operators with stable and enabled environments in which to operate, has been a key driver in all the UNICEF regions. Amongst other things, regulatory developments have resulted in more efficient spectrum allocation, the use of cost-based interconnection regimes, number portability, the advent of virtual network operators, and licensing provisions that require operators to achieve universal access so that rural users also have access. These developments have all facilitated competition, reduced cost to consumers and compelled operators to improve and expand their service offerings.
- **The ambitious roll-out of mobile network infrastructure** between 2000 and 2010 has meant that more people than ever before have access to a mobile signal. Today, many countries have 90% population coverage and upward. In Asia Pacific, for example, population coverage rose from 50% in 2001 to 80.6% in 2007.
- In stark contrast to more developed markets where most subscribers enter into time bound contracts with mobile operators, the vast majority of subscribers in less developed countries are **prepaid customers**. In Africa, for example, 95% of subscribers are prepaid. This provides them with great flexibility, which can be extremely important for low income users whose income can be unpredictable, as they can subscribe to mobile services with little or no obligation to pay for and use services.

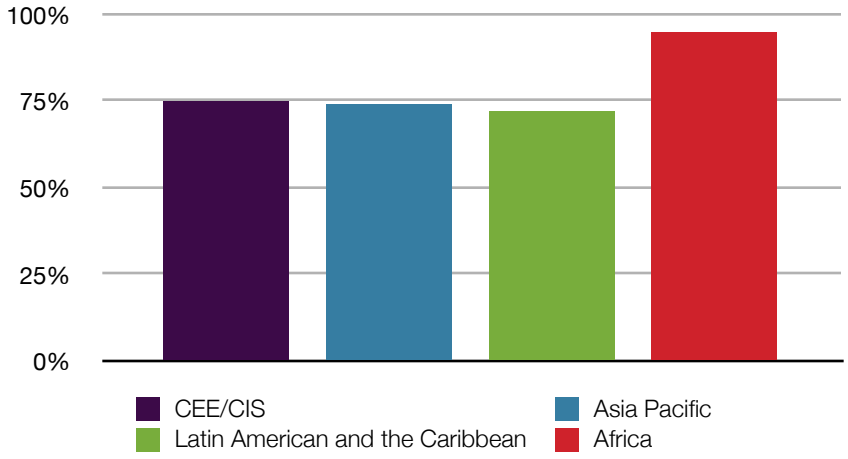

Figure 4-10 Prepaid Mobile Subscriptions by Region, 2008

- The **falling price of entry-level mobile handsets** has enabled more people than ever before to own one. Today, users can purchase an entry-level handset for as little as USD 12 to 15. Indeed, some have suggested that "Mobile telephony, which started as a luxury product used primarily in developed economies, has now become universally available".[15] This does not mean those at the BoP no longer find the mobile phone to be a significant and expensive purchase – it still is for many. However, evidence suggests that the falling price of entry-level handsets has made them a desirable and increasingly attainable for many.

[15] Banjanovic, A. (8 December 2009). *Special Report: Towards universal global mobile phone coverage. Euromonitor International* [online]. Available from: http://www.euromonitor.com/Articles.aspx?folder=Special_Report_Towards_universal_global_mobile_phone_coverage&print=true [Accessed 21st September 2010]

- The **rise of low denomination top-up cards**, which enables users to top up their credit when they have very limited funds, has provided many people, especially those at the BoP, with the flexibility to use services when income and expenditure may not be predictable. In Sierra Leone for example, where 53% of the population live on less than USD1.25 per day[16], users can top up and make calls for as little as USD 0.35. The flexible forms of ownership and usage are increasing with electronic air time transfer services being introduced by many operators. These offer users the opportunity to automatically transfer units/credit to others who may have no credit.
- The **development and use of innovative business models**, including infrastructure-sharing and unique distribution strategies making the expansion of network coverage to rural areas economically viable to operators and consumers have been significant drivers in Africa, Latin America and the Caribbean, and Asia Pacific. The innovative business models have been developed due to prevailing market conditions, but also result from the targeted policy and regulation mentioned above. For example, many regulators now stipulate that mobile operators share infrastructure. Many operators have approached this enthusiastically as it has helped to reduce capital expenditure and therefore increase network coverage.
- **Rapid economic development in some regions**, which has led to increased citizen prosperity and purchasing power, has been a significant driver of increased mobile penetration, most notably in Asia Pacific and the CEE/CIS. Between 2000 and 2008 Russia witnessed huge political, social and economic changes. Amongst other things, these resulted in increasing economic prosperity for many Russians, making access to the expanding mobile networks more affordable and leading to increased penetration. Between 2000 and 2008, its GDP per capita rose from USD 1,254 to USD 9,119, and the penetration rate soared from 2.2% to over 140%

Table 4-3 summaries the key drivers and the regions where they have been most influential.

Key Driver	Region
The introduction of low-cost handsets and the reduction in mobile usage prices	Africa
	Latin America and Caribbean
	Asia Pacific
	CIS
The ambitious rollout of mobile network infrastructure and increased access	Africa
	Latin America and Caribbean
	Asia Pacific
	MENA
	CIS
Innovative business models, including infrastructure-sharing and unique distribution strategies making the expansion of network coverage to rural areas economically viable to operators and consumers	Africa
	Latin America and Caribbean
	Asia Pacific
Rapid economic development in some regions, increasing citizen prosperity and affordability	Asia Pacific
	CIS
The success of cost-effective pre-paid services allowing consumers to take control of their spending and gain access to flexible, low-cost voice and SMS services	Africa
	Latin America and Caribbean
	Asia Pacific
	MENA
	CIS

[16] UNICEF (2007) UNICEF Country Statistics (1992-2007) [online]. Available from: http://www.unicef.org/infobycountry/sierraleone_statistics.html [Accessed 21st September 2010]

Key Driver	Region
Liberalisation of markets and growth of competition	Africa
	Latin America and Caribbean
	MENA
Targeted policy and regulation	Africa
	Latin America and Caribbean
	Asia Pacific
	MENA
	CIS

Table 4-3 Key Drivers of Mobile Telephony Growth

4.1.8. Remaining Challenges in Mobile Telephony Growth

Clearly the trend of increasing mobile subscriptions and penetration highlights huge progress in the expansion of mobile telephony and stakeholders' efforts to connect people. It has been suggested that global access to mobile phones will reach universal levels sometime between 2015 and 2020.[17] Indeed, the GSMA has suggested that there will be 6.2 billion subscribers by 2013. Yet there are a number of remaining challenges that must be overcome if universal access is to be achieved. The five most important remaining challenges include:

- The **continued high price of services** in some markets will continue to prevent people using services, most notably in Africa, Latin America and the Caribbean, Asia Pacific and CEE/CIS. There are a number of reasons why prices continue to be relatively high in some countries, but high taxes can have a significant impact, increasing the total cost of ownership and circumscribing consumers' ability to pay for mobile handsets and services. This is particularly problematic in Sub-Saharan Africa where VAT on mobile services ranges from 5% to as much as 23%. Uganda is often cited as a country where taxes are particularly high. Uganda has a highly competitive mobile market, yet the tax rate which stands at 30%, 18% VAT and 12% excise duty on airtime, has restricted the growth of mobile penetration.

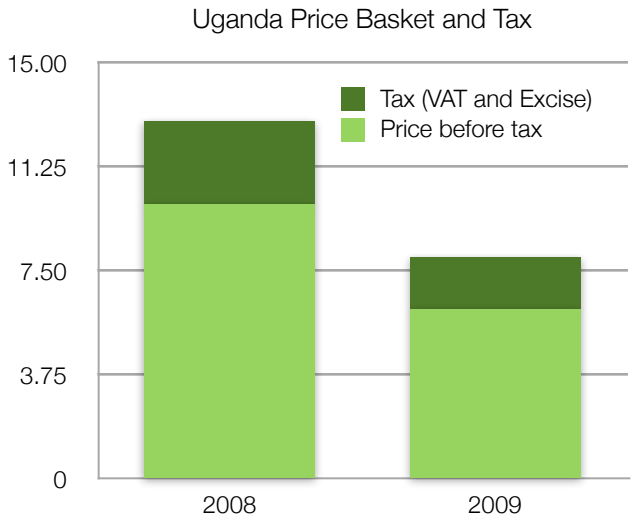

Figure 4-11 Uganda Mobile Price Basket and Tax Element

- **Poor levels of competition** in many countries have hindered increased penetration. Although the large majority of countries have liberalized their mobile sectors, some countries are still to liberalize and some that have liberalized do not yet have the deep levels of competition that drives operators to expand networks and reduce prices. The challenge is more common in Africa, Latin America and the Caribbean, MENA, and the CEE/CIS. For example, Cuba and Eritrea are both yet to be liberalized and have the lowest levels of mobile penetration in their respective regions.

[17] Universal Access (UA) - Ensuring all people has reasonable means of access to a publicly available telephone and emergency services in their communities. The solution is mobile. In the vast majority of countries more than 95% of the total population are economically reachable with mobile networks.

- There is a direct correlation between GDP per capita and penetration suggesting that **low levels of economic growth and income** have stunted the development of mobile telephony in some countries. On average there are 35 subscriptions per 100 inhabitants in lower-middle income economies compared to 24 subscriptions per 100 inhabitants in low-income economies. Bangladesh, a low-income economy with a GDP per capita in 2008 of USD 467 had a relatively low penetration rate of 27.9%. Yet, Malaysia, an upper-middle income economy with a GDP per capita of USD 7,031 had a penetration rate of 102.59% in 2008.
- **Policy makers and regulators impeding 3G** have also emerged as a problem in Latin America and Asia Pacific. Indian 3G license auctions, which took place early 2010, were held back for a number of years due to delays in organizing the auction process and the Indian military's relinquishing of required spectrum frequency. In Brazil, to overcome the issue of 3G not being provided outside profitable urban areas, allocation of 3G spectrum was given with provisos that operators will advance access to mobile telephony throughout the country.
- **Extending networks to rural areas** in order to achieve universal access remains a significant challenge. Rural access has improved immensely in many countries, but disparities between urban and rural access persist in a number of countries. The problem is particularly acute in Africa, Latin America and the Caribbean, Asia Pacific, and MENA.

4.1.9. Optimism About Connecting Rural Communities and Reaching the Most Vulnerable

UNICEF's work with the most vulnerable and hard-to-reach means improved rural access is critically important. Despite the current rural-urban disparity, there is reason to be optimistic about the future of rural mobile telephony. Rural coverage has extended significantly and signals now cover 90% of the population in many countries, resulting in huge increases in rural penetration. Malaysia, for example, has seen rural penetration in some states rise from 10% in 2005 to 50% in 2008.[18] While the levels of penetration may seem disappointing when compared to impressive statistics for urban penetration, it is important to remember that in 2005, it would have seemed preposterous to predict rural penetration levels of 50%.[19]

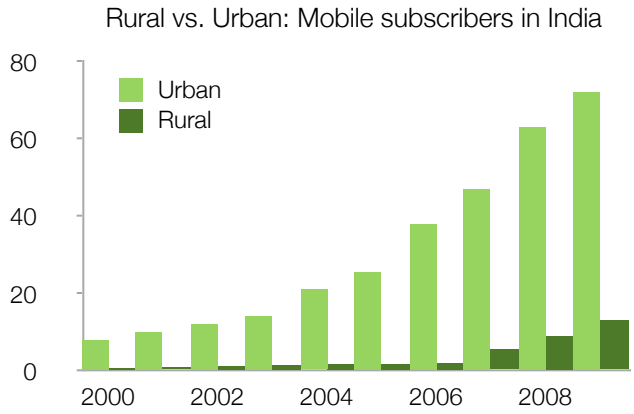

Figure 4-12 Rural vs Urban: Mobile Phone Subscribers in India

Rural users are eager to adopt services, seem undeterred by perceived price barriers and are willing to spend significant proportions of their income on mobile services. This presents operators with viable business propositions. Some observers note, "there is a myth that the rural poor are not able to and not willing to pay for

[18] Malaysian Communications and Multimedia Commission (SKMM), (2008) Communications & Multimedia Facts and Figures Q4 2008 [online], Selangor Darul Ehsan: Malaysian Communications and Multimedia Commission, Off Persiaran Multimedia. Available from: http://www.skmm.gov.my/link_file/facts_figures/stats/pdf/SKMM_Q4.pdf [Accessed 21st September 2010]

[19] Consultation with David Townsend of DNTA associates (23rd August 2010).

services".[20] Research with BoP communities suggests that some in the lowest segments spend more on ICT services, which are predominantly mobile, than they do on water and health.[21]

Many rural users who do not own mobile phones spend significant portions of their income on mobile phone services because of the benefits they provide. A survey of rural BoP users in Bolivia suggested that, amongst the bottom segments, few owned mobile phones, yet they spent $27 of their $35 annual ICT expenditure on telephone services. In Paraguay, a survey found that 0.25% of rural BoP households owned a mobile, but annual spending on mobile phones per household is USD 117. In Pakistan, only 6% of rural BoP households own a mobile phone, yet annul spending averages USD 24 and in Uganda, where 0.10% of rural BoP households own a mobile, spending on mobile phone services averages USD 29.[22]

Rural customers "have been hungry for mobile phones for a long time, so demand will remain unaffected" by the prevailing circumstances.

CEO
Reliance Communications

In 2009, the then-chief executive of Reliance Communications, which went nationwide across India in January 2009, noted that rural customers "have been hungry for mobile phones for a long time, so demand will remain unaffected" by the prevailing circumstances.[23] While willingness to spend on services is positive as it encourages operators to provide ever more services, it is important the trend of falling prices continues, so that the proportion of income spent on mobile services by those at the BoP declines. The zero-sum game played by many in the lowest segments of the BoP, where they may sacrifice spending on health or water in order to use mobiles phones, must end.

The zero-sum game played by many in the lowest segments of the BoP, where they may sacrifice spending on health or water in order to use mobiles phones, must end.

Leading observers are confident in the market's ability to meet the needs of rural users, given an efficient and competitive market. However, they appreciate that the market is not perfect and some form of subsidy will be required if countries are to achieve universal coverage.[24] A study of 24 countries' infrastructure investment requirements for universal voice coverage concluded that the majority of the population who are not under a mobile signal footprint fall within the Efficient Market Gap, which consists of those areas where

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[20] Samii, R. (January 2010) The Commodity that Survived the Economic Downturn, IFAD: Mobiles for development. i4donline [online]. Available from: http://www.i4donline.net/articles/current-article.asp?Title=The-Commodity-that-Survived-the-Economic-Downturn-IFAD&articleid=2350&typ=features [Accessed 21st September 2010]

[21] From chapter 3 'The Information and Communications Market' in - Hammond, A. L., Kramer, W. J., Katz, R. S., Tran, J. T., Walker, C. (2007) The Next 4 Billion: Market Size and Business Strategy at the Base of the Pyramid [online]. Washington. World Resources Institute. Available from: http://rru.worldbank.org/Documents/Features/TheNext4Billion/Report/Chapter3.pdf

[22] Ibid

[23] Bellman, E. (10 February, 2009). Rural India Snaps Up Mobile Phones. The Wall Street Journal [online]. Available from: http://online.wsj.com/article/SB123413407376461353.html [Accessed 21st September 2010]

[24] Universal coverage – defined as 98% of population with access to the mobile voice signal.

infrastructure roll-out is likely to be funded by the private sector, given an efficient competitive market.[25] Small sections of the population, some 4.4% across all the countries, fall in the Coverage Gap, which is made up of those areas that do not present a viable business proposition for the private sector and require subsidies. Either they are not commercially viable for capital expenditures to be covered, but provide enough revenue to cover operational expenditures (Sustainable Coverage Gap), or they lack sufficient demand to cover both capital and operational expenditures. Figure 4-13 illustrates the percentage of the population that had mobile coverage, and the percentage that fall within the Efficient Market Gap in the 24 African countries. The black area depicts the percentage of the population in the Coverage Gap. These sections of the population live in areas that will require public financing or subsidies for infrastructure
rollout.

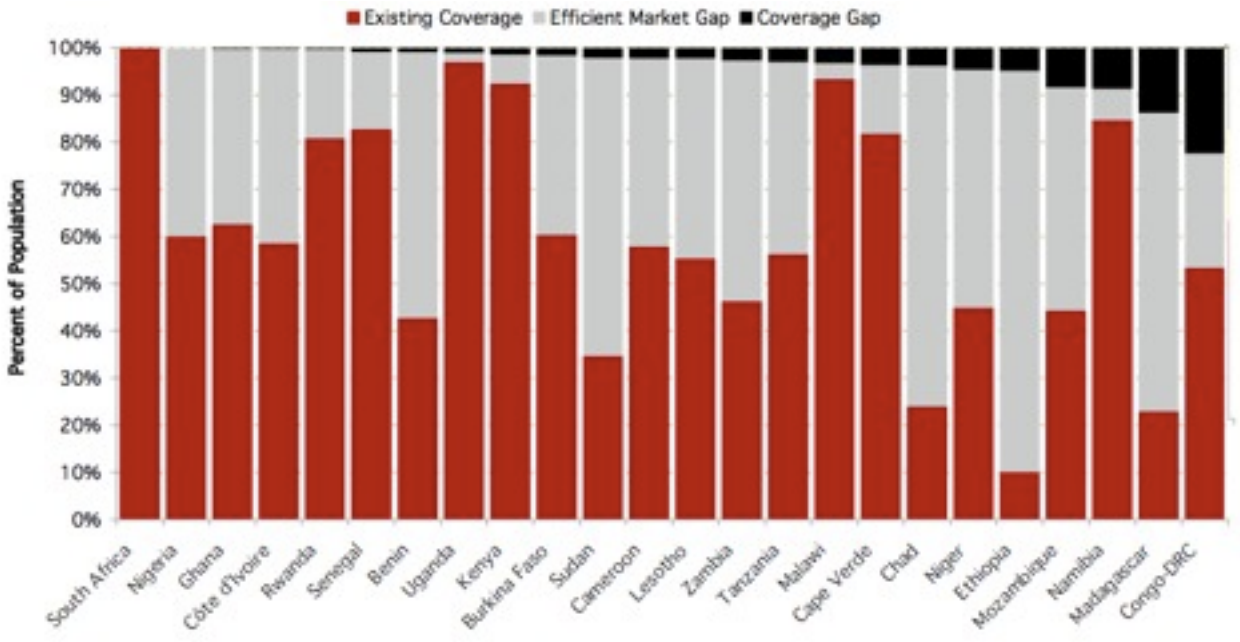

Figure 4-13 Gaps in Voice Infrastructure Coverage in 24 African Countries
(Source: Winrock International and Pyramid Research)

ICT and telecommunications policy makers in developing countries with underserved and unserved areas have implemented policy and regulatory frameworks aimed at driving rural access and their policies are having a positive impact. Firstly, mobile operators' licenses stipulate that, amongst other things, they must strive to achieve universal access and provide services in underserved areas. Secondly, in recognizing the risk posed by market failure that occurs when operators do not provide services in rural areas, governments are developing mechanisms to mitigate against such failures. Universal Services and Access Funds (USAF) levy a charge on operators, typically between 1% and 5% of revenue. The proceeds are then used to subsidize the provision of services in rural areas that operators may perceive as unprofitable.

[25] Mayer, R., Figueredo, K., Jensen, M., Kelly, T., Green, R., Barra, A. F. (2008) Africa Infrastructure Country Diagnostic: Costing the Needs for Investment in ICT Infrastructure in Africa [online]. Washington, DC, World Bank. Available from: http://www.eu-africa-infrastructure-tf.net/attachments/library/aicd-background-paper-3-ict-invst-summary-en.pdf [Accessed 21st September 2010].

USAFs have proved extremely successful in many South American countries, helping to extend access to mobile telephony and other ICT services. A recent study by ITU has tracked the process of setting up USAFs in Africa and indicates that 25 countries have drafted the relevant laws mandating the establishment of a USAF. There have been delays in establishing funds – in Africa, only 5 of those 25 have done so. Moreover, of those established, the disbursement of finance by those funds has been slow. However, as USAFs mature, their ability to drive rural access amongst the hardest to reach communities will improve.[26]

During consultation with stakeholders, many cited poor levels of rural electrification as a major impediment to the expansion of mobile networks and development organizations' M4D efforts aimed at those hardest to reach. In Africa, only 22% of rural dwellers have access to electricity in 2008 and for those that do, supply may be intermittent. Mobile operators have been able to surmount the challenge posed by poor rural electricity supply by using diesel-powered generators on a wide scale. The expansion of networks to hard-to-reach rural areas that are off-grid has been so successful that in many countries rural dwellers have more access to mobile networks than they do their national grid. For example, amongst Sub-Saharan African countries, South Africa has the widest electrical grid. However, only 55% of rural dwellers have access to electricity, while 100% of the population is covered by a mobile signal.

Increasing coverage in off-grid rural areas is likely to continue, as operators seek to gain new customers outside saturated urban markets. However, questions have been raised about operators' ability to continue meeting the huge cost involved in providing connectivity in hard-to-reach off-grid locations in the long-term. The operational costs involved in running off-grid GSM base stations using diesel power are considerable, ranging from USD 30,000 to USD 60,000 a year, and can stop operators providing services in very hard-to-reach under-populated areas. In one East African country, one fifth of a particular operator's 2,500 base stations are diesel powered. At a conservative estimate, the firm's operational cost of providing access in off-grid locations is USD 30 million. With prevailing economic circumstances, operators are more circumspect than ever about the provision of costly diesel-powered rural base stations.[27]

Fortunately, operators are implementing a number of hybrid solutions, which combine wind, biomass and/or solar power with diesel in order to reduce the Operational Expenditures involved in providing off-grid base stations. Although they may increase Capital Expenditures by as much as 50%, proponents of the hybrid solutions suggest they could cut operational expenditure by 90%.[28] This would make the business model used for rolling out networks in off-grid rural locations and connecting the hardest to reach rural communities even more viable. Operators such as MTN, Zain, Etisalat and Bharti Airtel, who are focused on gaining new subscribers in rural areas, are currently testing and exploring these hybrid solutions. The GSMA suggests the number of off-grid base stations will increase to 639,000 by 2012, up from 288,000 in 2007. 118,000 of these will be powered by renewable

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[26] Bob Lyazi, Chairman, African Universal and Service and Access Fund Association (AUSAFA), Implementing Universal Service Funds in Africa: Problems, Solutions: Presentation at 8th December 2009, London, CTO Investing in ICT conference

[27] Balancing Act (6 August 2010). A hybrid wind and sun solution for base station energy that claims to cut diesel costs by over 90%. Balancing Act [online]. Available from http://www.balancingact-africa.com/news/en/issue-no-516-0/top-story/a-hybrid-wind-and-sun-solution-for-base-station-energy-that-claims-1[Accessed 6th August 2010].

[28] Ibid

energy.[29] Interestingly, the GSMA also suggest that the expansion of mobile networks may help extend the provision of electricity to off-grid locations in less developed countries. They suggest some off-grid base stations will provide communities with small amounts of electricity, while others may create enough demand to make power in rural locations a viable proposition for third-party electricity supply.[30]

Figure 4-14 ZTE Solar-Powered Mobile Phone

Some of those consulted also questioned whether rural users in off-grid locations can charge their mobile phones in order to use them when they do have mobile network access. While rural dwellers do charge phones using everything from generators to rudimentary bicycle driven solutions, an increasing number of solar-powered phones are meeting the challenge. In August 2010, Vodafone launched its VF 247 solar-powered phone, which was developed by ZTE and can be charged in sunlight or ambient light, as well as from mains electricity. This is just one example of many solar-powered mobile phones that are now on the market. Over the last two years mobile handset manufacturers like Samsung, Nokia, Motorola, Huawei and ZTE are selling entry-level mobile handsets that can be charged using solar power.

4.2. Trends in Regional Internet Penetration

Like mobile telephony, the overarching global trend for the Internet is one of increasing penetration. However, analysis of the data indicates two distinct and immediate differences. The levels of usage have been disappointing in comparison to that of mobile telephony; between 2000 and 2008, the world user penetration rate rose from 6% to 23%. Second, the growth has been driven by more developed countries and not less developed countries where penetration rates remain well below global levels.

User penetration rates for Africa, 5%, Asia Pacific, 13%, and MENA, 19%, were below the world average in 2008. The story is different in Latin America and the Caribbean, where the penetration rate stood at 29% in 2008. In addition to the regional differences, there are disparities between countries within regions.

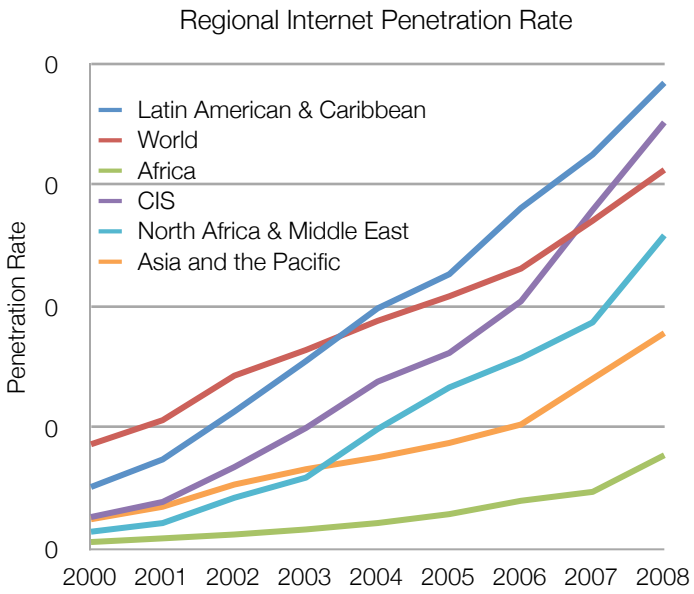

Figure 4-15 Regional Internet Penetration Rates, 2000-08

[29] GSMA (2010) Green Power Mobile, Community Power: Using Mobile to Extend the Grid [online]. London, GSMA. Available from: http://www.altobridge.com/wp-content/uploads/2010/01/Community-Power.pdf [Accessed 21st September 2010].

[30] Ibid

4.2.1. Africa Internet Penetration

Internet growth in Africa was third highest compared to other regions, with a CAGR for user penetration of 30%, when the world had a CAGR of 17% between 2000 and 2008. However, much of this growth was driven by two countries; Nigeria, Africa's most populous country accounted for 38% of the subscriber growth with 10.9 million new users, and Kenya with 3.3 million new users between 2000 and 2008. Much of this usage has been driven by shared access points like Internet cafes, which allow people to rent time, rather than be a direct consumer of Internet services. In part, this helps account for Africa's 32 million Internet users and only 1.4 million subscribers by the end of 2008.

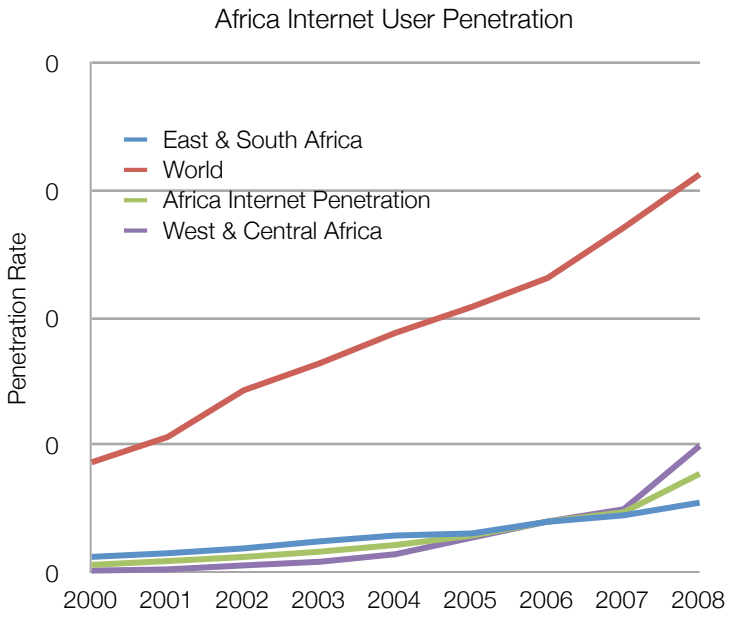

Figure 4-16 Internet User Penetration Rates in Africa, 2000-08

Seychelles had the highest Internet user penetration rate in the region in 2008 with a penetration rate of 40%. The next highest, Cape Verde, had a penetration of 21%, in contrast to the lowest user penetration rate in Africa in 2008 of 0.25%, possessed by Sierra Leone. Out of 45 countries in the region, 40 fell below the mark of 10% user penetration and as many as nine African countries were below 1% penetration.

Of the Case Study Countries, Uganda had the highest penetration, ranked 9th in the region out of 45 countries, with 7.9%. Zambia ranked 14th out of 45 with 5.6%, Ghana had a penetration rate of 4.3% and ranked 18th, Malawi was 27th with 2% and Sierra Leone was the lowest in the region with 0.25%.

4.2.2. Asia Pacific Internet Penetration

In 2008, the Asia Pacific region had the largest share of Internet users in the world, with 464 million. In 2008, the Internet user penetration for the region was 13%, compared to the world's 23%.

China, India, and Japan have led the region's 24% annual growth between 2000 and 2007. Japan had the highest penetration of household PCs at 80% and subsequently had the highest rate of Internet penetration, 74%. In

contrast, Bangladesh had 5% penetration of household PCs and 0.35% Internet penetration.

The Republic of Korea was the highest ranked country in the Asia Pacific region in 2008 for Internet user penetration rate of 76.5%, followed by Niue with 65.92%. The lowest ranked country was Timor-Leste with 0.16%. However, Nauru doesn't have recorded data and therefore could have lower user penetration than Timor-Leste.

Of the Case Study Countries, Mongolia was 12th out of 34 countries in the region in 2008 with 12.5% user penetration, Lao PDR ranked 15th with 8.5%, the Philippines had a penetration of 6.22% and ranked 20th, Sri Lanka followed in 21st place with 5.8% penetration, and finally Bangladesh was 31st out of 34 countries with 0.35%.

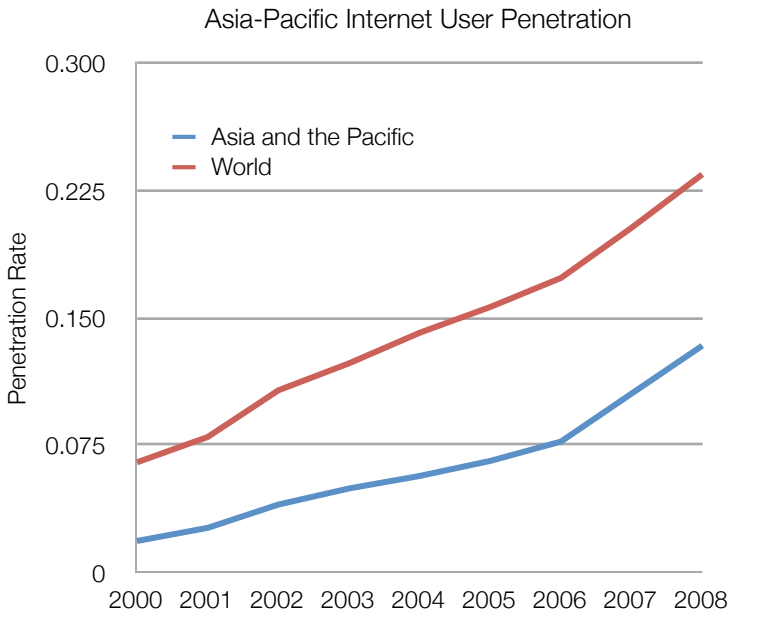

Figure 4-17 Internet User Penetration Rates in Asia-Pacific 2000-08

4.2.3. Middle East and North Africa Internet Penetration

In 2008, Internet penetration in MENA was 19%, up from 2% in 2000. There were 78 million Internet users in MENA, but only 3.5 million were subscribers, suggesting that shared access to Internet is just as important in MENA as it is in Africa.

The United Arab Emirates had the highest Internet user penetration rate at 65%, followed by Bahrain with 52%. The lowest user penetration in the region was held by Iraq with 1%. Of the Case Study Countries, Iraq was ranked 20th out of 20, and Egypt ranked 13th out of 20 countries with 16.7%.

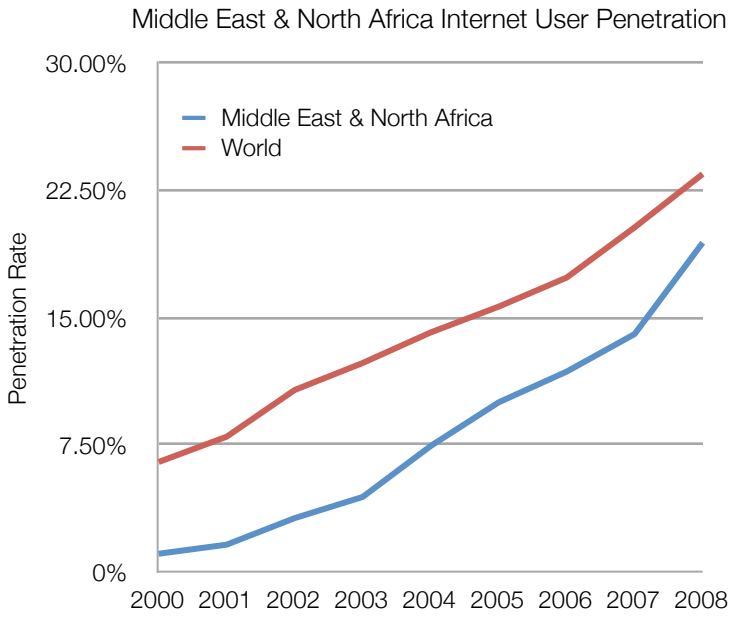

Figure 4-18 Internet User Penetration Rates in MENA, 2000-08

4.2.4. Latin America and the Caribbean Internet Penetration

Since 2004, Internet penetration in Latin America and the Caribbean has been growing at a faster rate than the world average; by 2008, the user penetration rate was 29%, up from 3% in 2000. Internet subscriptions grew from 11 million in 2003 to 31 million in 2008. There are, however, 164 million users, suggesting there is significant use of Internet cafes and other shared access points.

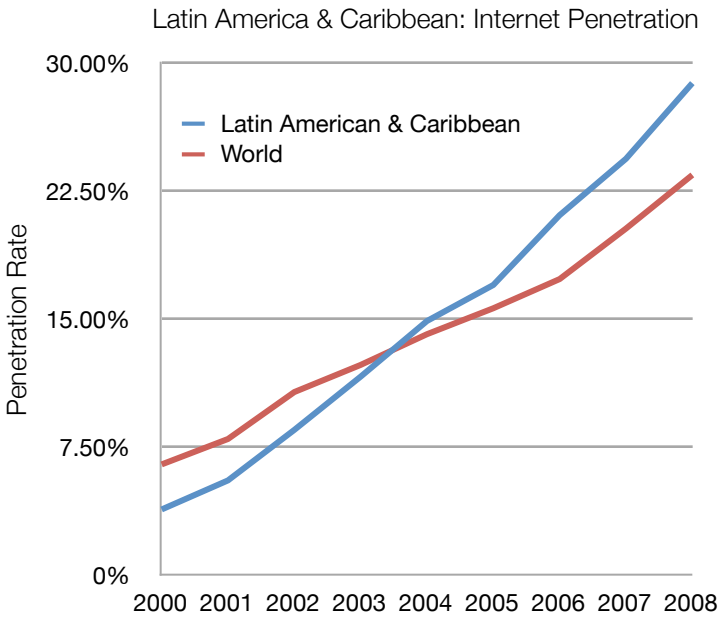

Figure 4-19 Internet User Penetration Rates in Latin America and the Caribbean, 2000 - 2008

Antigua and Barbuda was ranked highest penetration in 2008 with 75%, followed closely by Barbados with 73.7%. The lowest recorded penetration was in Nicaragua with a user penetration of 3.26%. However, the British Virgin Islands and Turks and Caicos Islands had no data recorded in 2008 and therefore could have lower penetration than Nicaragua.

Of the Case Study Countries, Suriname ranked 32nd out of 35 countries in the region with 9.7% in 2008.

4.2.5. CEE/CIS Internet Penetration

In the CEE/CIS, 50 million users were added between 2003 and 2008, and penetration in the region rose from 7.5% to 26%. By 2008, CEE/CIS had 106 million users and 51 million subscribers, accounting for almost 7% of global users in 2008. Like all other less developed regions, shared access to Internet has been at the heart of increased usage, but to a lesser degree than Africa, MENA and Latin America.

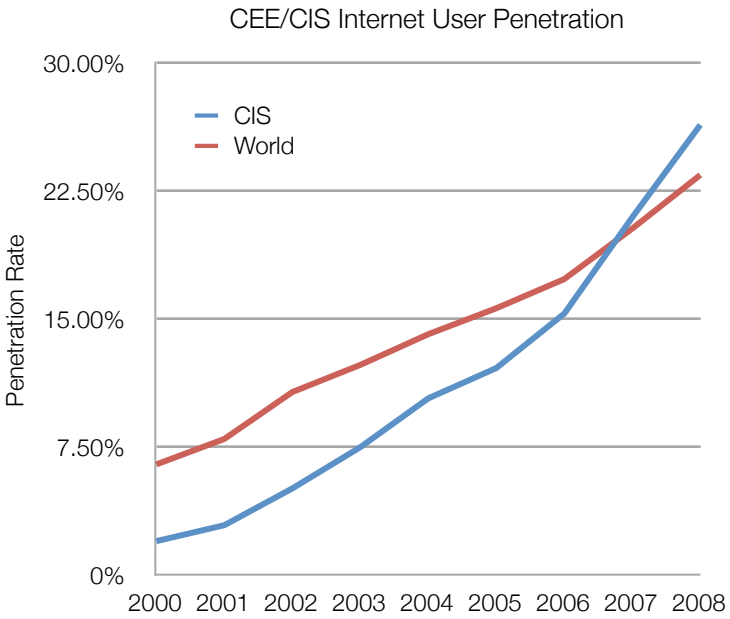

Figure 4-20 Internet User Penetration Rates in CEE/CIS, 2000-08

Croatia had the highest Internet user penetration in 2008 with 51%, followed closely by Montenegro with 47%. The lowest ranked country out of the 22 countries in the region was Turkmenistan with an Internet user penetration rate of 1.5%. Unlike in mobile penetration, with regards to Internet penetration, Russia was not leading the way, ranking only 9th out of 22 countries with 32% user penetration.

Of the Case Study Countries, Kosovo has no recorded data for its Internet usage.

4.2.6. The Need for Broadband and the Importance of Mobile Networks

There are, of course, differences in Internet service. Broadband Internet offers a far richer experience than "normal" dial up Internet. It enables the effective use of a wider range of applications, including bandwidth intensive applications, content and services. Broadband usage in less developed countries has lagged behind Internet usage. Figure 4-21 illustrates the difference between broadband Internet usage, Internet subscription and broadband subscriptions for each UNICEF focus region in 2008.

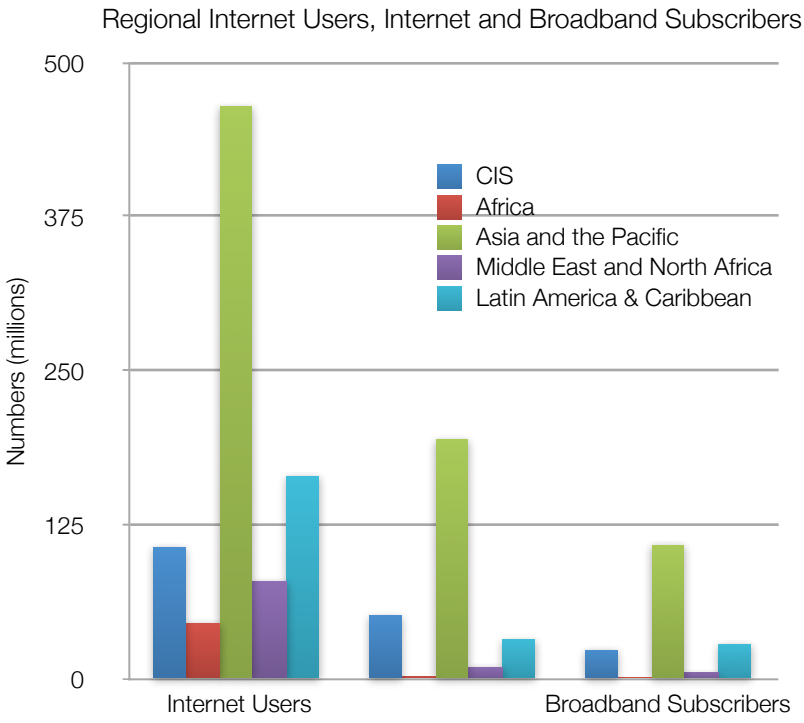

Figure 4-21 Regional Internet Users and Internet/Broadband

Mobile telephony offers high potential to catalyze broadband usage in less developed countries by providing access to more people than ever before. In 2005, mobile operators in South Africa were first licensed to provide broadband services, which quickly became the primary means of access for broadband. Their ability to connect people who previously had to wait months for a fixed line telephone and ADSL connection led them to meet pent-up demand for the services and become the number one providers of broadband in South Africa.[31]

[31] Link Centre (2007) -South African Telecommunications Sector Performance Review 2006.

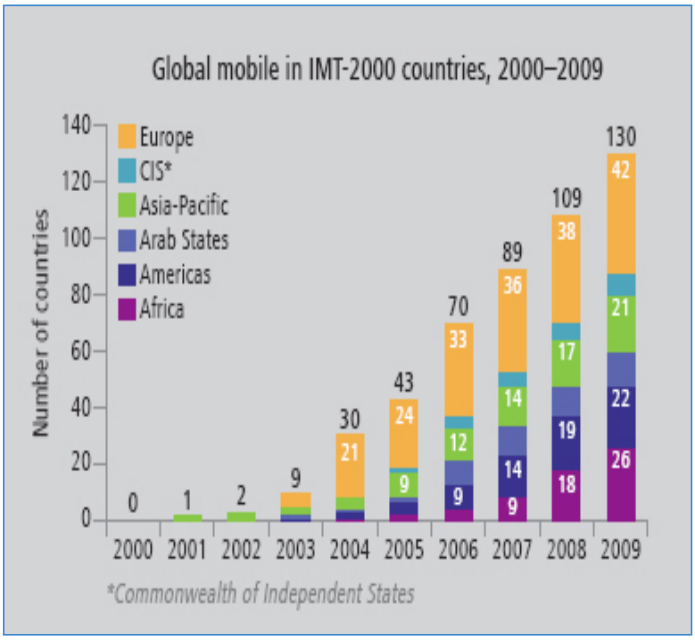

Figure 4-22 Roll–Out of High Speed Mobile Data Networks in Rural Areas

Providing people with access to broadband through mobile networks requires high speed mobile data networks and these are increasing in developing countries. In 2001, only one country had a high speed mobile data network.[32] Yet by the end of 2009, 130 countries had such networks, and mobile broadband subscriptions reached an estimated 640 million. Many of these countries were in less developed regions; a trend that is set to continue as pent-up demand for broadband Internet increases. Much of this growth has been driven by increased use of smart phones, new applications and social networking. The International Telecommunications Union (ITU) estimates the number will exceed one billion in 2010.

Despite the ongoing roll-out of these networks in rural areas, there are doubts as to whether those in rural areas will have access to high speed data networks in the short to medium-term. More details follow in the next section.

4.3. Common Themes & Trends in Regional Operators' Business Strategy

Unsurprisingly, the business strategies being implemented by the Regional Operators examined are designed to result in increased revenues, higher profits and shareholder satisfaction. These are not easy objectives to fulfill in an era of unprecedented competition between operators and economic uncertainty resulting from the global economic crisis.

Analysis of regional operators' latest, publicly available annual reports indicate that the strategies being employed by most regional operators are remarkably similar.

Figure 4-23 Key Regional Operators Consulted for the Study

As a result, there are a number of common themes within the business strategies of most operators, and these provide insights into the current and future trends in business strategies, operational practices, services and infrastructure rollout. Figure 4-22 below depicts these common themes in mobile operators' business strategies.

[32] High Speed Mobile Networks can provide data rates in excess of 256kbps to moving devices.

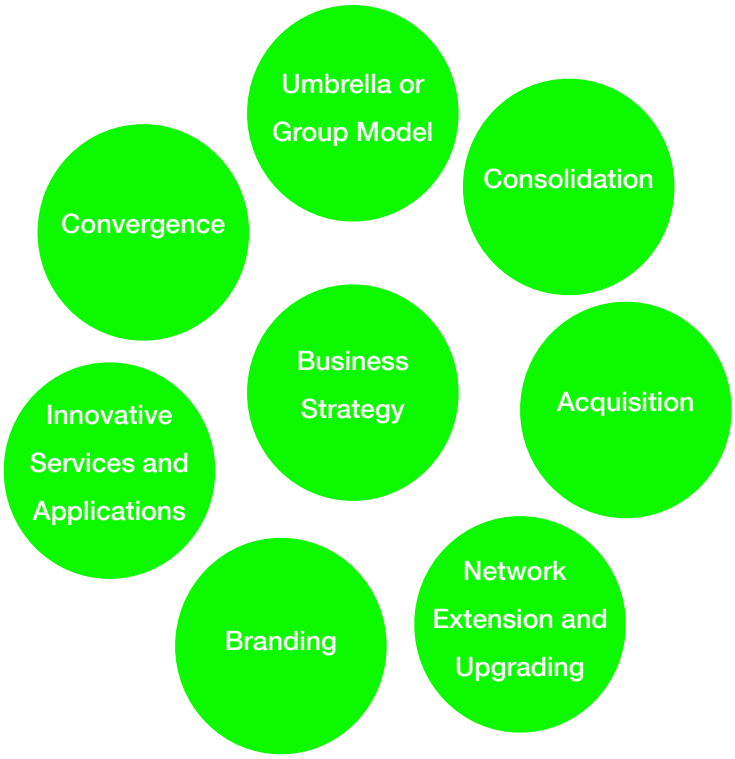

Figure 4-24 Mobile Operators' Key Business Strategies

4.3.1. Use of Group Strategy

The deployment of a group model of strategy, often termed an umbrella structure, is at the heart of most regional operators' business strategy. Most regional operators use a group strategy in order to manage their national operations from the centre. While taking account of local context, they aim to leverage economies of scale and share the huge amount of knowledge acquired by individual businesses within the group.

While context is important, knowledge gained about consumer behaviour or sustainable business models, for example, can be shared between multiple national operations within the group to help the organisation benefit from the lessons learned by each operation. France Telecom, for example, is using what it calls an "integrated operator model", reinforcing the sharing of networks and information systems[33]; Etisalat, is using an "umbrella structure" that allows it to manage operations in 17 countries across two continents[34]; and Vodafone has implemented a "defined group strategy, leveraging the procurement strength of the whole group".[35]

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[33] France Telecom. 2008. Annual Report and Corporate Social Responsibility Report. [online]. Available from: http://www.orange.com/en_EN/finance/documentation/annual-reports/att00014094/annual-report2008_en.pdf [Accessed 5th October 2010].

[34] Etisalat. 2008. Annual Report 2008. [online]. Available from: http://www.etisalat.ae/assets/docs/financial/2007Flash/Flash2008/pdfs/english/etisalat_en08.pdf [Accessed 5th October 2010].

[35] Vodafone. 2008. Annual Report: For the year ended 31 March 2009. [online]. Available from: http://www.vodafone.com/static/annual_report/index.html [Accessed 5th October 2010].

4.3.2. Consolidation

Economic uncertainty and increasing competition have led many regional operators to pursue a strategy of consolidation in attempt to maintain their market position and potential for growth, while being robust enough to withstand future economic shocks. The global credit crisis and its aftermath have made it more difficult and more costly to obtain the finance needed for investment, as well as creating much economic uncertainty. At the same time, competition between operators has reached unprecedented levels. It has become increasingly difficult to add additional users following the huge growth usage, and the revenue provided by each existing subscriber is falling. As a result, measures taken to consolidate do vary, but most operators are taking one or more of the following three steps, disposing of undesirable assets, efficiency drives and strategic alliances

Disposing of undesirable assets

A number of operators have chosen to sell parts of their business to improve their balance sheets and use the funds or resources that would have been used on the disposed of asset to improve the competitiveness of operations in other countries. Although most sell assets they deem to be less profitable, there are examples of regional operators selling profitable assets. For example, Hutchinson Whampoa's 2009 sale of its 51.3% stake Partner Communications in Israel was completed in order to monetise an asset it believed it had maximised its value in, to strengthen its position in other markets and improve efficiency.

Efficiency Drives

The desire for cost savings and increased competitiveness has compelled all regional operators to actively seek greater efficiency. Achieving this goal has invariably required them to make fundamental changes to business processes and better leverage their economies of scale in order to reduce costs. Telefonica's 2008-11 objectives were to "Transform Business Processes"[36] in order to improve efficiency across the group. Prior to being purchased by Bharti Airtel of India, Zain's ACE business strategy centered on accelerating its service offerings, consolidating its position globally and in each of the national markets, and expanding its portfolio.[37] To consolidate, it sought to maximize efficiencies and develop best practices across the group. In 2008, a cross-functional initiative managed by Zain's procurement and network departments successfully renegotiated framework agreements with its main vendors and saved the company more than USD 280 million in planned capital expenditure and more than USD 30 million in network operating expenses.

Strategic Alliances

In some cases, operators have entered into strategic alliances with other operators. In September 2009, for example, Deutsche Telekom and France Telecom, which is branded as Orange in UNICEF focus regions, announced a 50:50 joint venture of their UK businesses T-Mobile and Orange. This followed a similar deal between Vodafone and Hutchison Whampoa's Australia operation in February 2009. These collaborations appear to be more common amongst those regional operators based in more developed markets in Europe and the USA. Yet the increasingly fierce nature of competition globally indicates that strategic alliances will become more prevalent in less

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[36] Telefonica. 2008. Annual Report 2008. [online]. Available from: http://informeanual.telefonica.es/upload/ing/memorias/IA08_Ing.pdf [Accessed 5th October 2010].

[37] Zain. 2008. The Power of One: Annual Report 2008. [online]. Available from: http://www.zain.com/muse/obj/lang.default/portal.view/content/Investor%20relations/Financial%20Reports/Annual%20Reports [Accessed 5th October 2010].

developed markets. For example, MTN and Vodacom, fierce competitors in Africa, have joined forces with Neotel to construct a 5000 km national fibre network in Southern Africa.

Regional Operators are also developing strategic alliances with non-operators in order to increase the range of services they offer. By teaming up with handset vendors, banks, content and applications developers, and TV production companies, operators can create highly innovative products and enter new markets. Etisalat, British Telecom, and France Telecom's joint venture in innovation, was established to help each party develop new services, make efficiency savings, and roll-out infrastructure. Bharti Airtel and the handset manufacturer Nokia are currently working together to develop agricultural services in India. Telefónica has intensified their collaboration with Telecom Italia and China UNICOM in order to exchange best practices in procurement processes.

4.3.3. Acquisition

The focus on consolidation has not stopped operators acquiring assets they believe will drive growth and increase profits – indicated by consolidation of individual business and the sector as a whole. Indeed, many operators have continued to acquire operations and licences in those markets they believe will deliver short-term, medium-term and long-term profits. For the most part, this has led the largest operators to acquire operations in those countries with low penetration levels and large populations, which present good growth opportunities.

The size of the biggest deals undertaken or explored in 2010 highlights the industry's appetite for acquisition and the growth potential in the less developed regions of the world. In January 2010, América Móvil acquired Mexican rival Carso Global Telecom for $24.3 billion and bought a $6.6 billion 40% stake in Telmex Internacional. In June 2010, Bharti Airtel completed its $10.7 billion purchase of Zain's Africa operations, and Telefónica seeks the remaining 50% in Brazil's Vivo Participacoes from Portugal Telecom.[38]

Mobile operations and licences are not the only type of acquisitions made by mobile operators. Many acquire businesses that will enable them to provide services outside their traditional remit and increase their customer base. A wide range of companies have been acquired, including television production companies, internet service providers, fixed line operators, data management companies, ICT infrastructure companies, and content and application development companies. For example, Axiata purchased SCS Computer Systems in order to improve its services offering to enterprises. Similarly, Vodacom purchased the Stortech, a data management company, to increase its offerings to enterprises, along with the purchase of Gateway, Africa's largest provider of satellite and terrestrial network infrastructure and interconnection services for African and international telecommunications companies. MTN purchased the ISP Verizon South Africa and in doing so secured a 25% of the national corporate data market.

4.3.4. Network Extension and Upgrading

Operators' desire to increase network coverage and provide access to more users than ever before is an important determinant of their business strategy, especially for those operators in markets where rural access and penetration levels remain low. As stated above, these markets, which are largely found in less developed countries, have been characterised by rapid network deployment in urban areas that are densely populated and have relatively well-off urban dwellers. In contrast, deployment in rural areas, where demand levels and ability to pay are perceived to be

[38] Vaughan, L. (14 June 2010). Telecoms M&A picks up after being on hold. efinancialnews [online]. Available from: http://www.efinancialnews.com/story/2010-06-14/telecoms-deals-pick-up [Accessed 21st September 2010]

low, has been slow. For example, with Indian rural access at 13%, Bharti Airtel's strategy explicitly indicates the company will up its efforts to eradicate the existing disparities in urban-rural access.

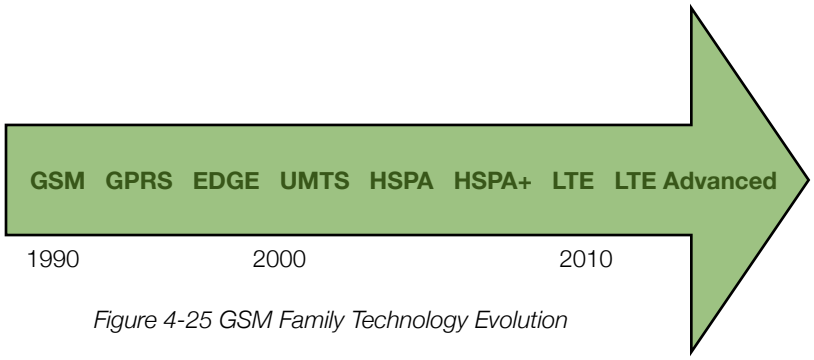

Figure 4-25 GSM Family Technology Evolution

Despite the continued challenge of providing basic network coverage and services to many rural dwellers, all the operators' business strategies outline their intention to add greater capacity to their networks in order to facilitate the greater usage of data and increasing number of bandwidth intensive value-added services (VAS). In part, driven by falling Average Revenue Per User (ARPU) levels and the rising revenues from data as subscribers use more VAS. The Hutchison Whampoa Group notes that its falling revenue for voice services was partially offset by the 9.8% growth in SMS, content and data services. Similarly, the Vodacom Group saw its customer base for broadband provided using its high speed data mobiles network service increase by 80% in South Africa, and Cable and Wireless had more than 40% of its mobile customers in Macau using high speed data mobile network by the end of 2008, compared with 14% the year before.

In UNICEF regions, operators are primarily using three technologies to improve the capacity of networks and meet the growing demand for data services: 3G, HSPDA and WiMax. Most intend to offer their customers an "any content, anytime, anywhere" service. Orange operations in Egypt, Senegal, Botswana and Madagascar already offer 3G services that bring customers access to a "complete suite of new services".[39] America Móvil has also invested heavily in 3G in Latin America and sees the technology as the key to achieving its strategy.[40] It is currently rolling out its 3G network in all 17 of its markets in order to provide Latin America with what it describes as ample capacity and coverage. In some countries the América Móvil strategy is already paying off, as the company has witnessed 70% increases in data usage. MTN is also working toward ensuring that some subscribers in all 21 of its markets have access to 3G and HSPDA networks. In 2008 Vodacom, in order to catalyse Internet usage in South Africa, increased the total number of 3G sites to 2,880 and added an additional 141 WiMAX.

In Europe, it is not unusual for the majority of a country to be covered by high speed data mobile networks. For example, 99% of France is covered by an Orange 3G signal, while 74% of the UK is covered. The situation is very different in many UNICEF focus countries, where operators have concentrated on rolling out high speed data mobile networks in urban areas. Decisions to roll out the networks are primarily dictated by operators' perceptions about the return on investment they will receive; with densely populated urban areas, where there is more demand for data, as the priority. Orange, for example, will only roll out 3G services in urban areas of those less developed countries where it believes it will get a return on its investment.

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[39] France Telecom. 2008. Annual Report and Corporate Social Responsibility Report. [online]. Available from: http://www.orange.com/en_EN/finance/documentation/annual-reports/att00014094/annual-report2008_en.pdf [Accessed 5th October 2010].

[40] America Móvil. 2008. Thriving in Challenging Times: 2008 Annual Report. [online]. Available from: http://www.americamovil.com/docs/reportes/eng/2008.html [Accessed 5th October].

Consultations with operators in the 14 Case Study Countries and private sector thought leaders suggest there are three key reasons why this trend is set to continue and rural areas are unlikely to have access to high capacity mobile data networks in the short to medium-term.

First, rolling out high capacity mobile data networks to rural areas is prohibitively expensive for many operators. While the numbers vary, it is accepted that for every 2G base station that is deployed, an operator would need to deploy between three and five 3G base stations. The frequency bands that most 3G operators have been allocated are between 1800 MHz and 2100 MHz as opposed to the 800-900 MHz allocated to 2G networks. Operating in the higher frequency band means 3G base stations have a smaller footprint than their 2G counterparts. Furthermore, the power consumption on 3G networks and therefore the operational costs are higher than their 2G networks, which also poses a challenge.

"I wouldn't say that it isn't essential for rural users to have 3G services. Bandwidth is directly related to patience, the higher the bandwidth, the less patient the user or society is."

Tony Fish
Founder/Author at My Digital Footprint

Second, in the last five years, many operators in less developed markets have invested significant amounts in 3G licences, infrastructure and marketing and have begun to reduce their capital expenditures on 3G. They are now concentrating on increasing data usage in order to get a return on their considerable investment in urban areas, where data usage is relatively low and capacity of the networks is not being fully utilised. MTN's latest data suggests its capital expenditures on 3G infrastructure has declined in the last year, as it seeks to obtain a return on investment following its aggressive expansion of high speed data mobile networks in the last three years.

Internet Subscribers

Third, there is a feeling amongst many operators that, for the meantime, high capacity mobile data may not be necessary in rural areas. Indeed, one of those consulted suggested that providing 3G services to rural areas would be like giving a Ferrari to a person with no driving licence, as few rural users have the 3G enabled mobile handsets and devices that allow them to use more sophisticated 3G services.

Many operators believe rural users do not have the same bandwidth requirements in terms of speed and capacity as their urban counterparts. Moreover, some believe higher level 2G technologies such as EDGE can meet requirements in rural areas, as they can facilitate the use of internet and multi-media. At the bottom end, 3G can provide 200kbps of throughput, while EDGE can provide 130kbps.

The stark reality is that rural users will not have access to high speed data mobile networks and services in the short- to medium-term. Yet this should not undermine M4D efforts.

The stark reality is that rural users will not have access to high speed data mobile networks and services in the short- to medium-term. Yet this should not undermine M4D efforts. Development organisations focused on reaching the most vulnerable will simply have to design appropriate initiatives for rural areas bearing in mind the bandwidth constraints. Many, including UNICEF, have become adept at this and their creativity will be important for maximising the use of 2G networks.

In addition to high-speed wireless infrastructure, some mobile operators are also implementing submarine and terrestrial networks in order to provide more bandwidth intensive services such as IPTV (internet protocol television) and Broadband Internet. Some of the most notable developments have been in Africa, where five new submarine cables are scheduled to go live between 2010 and 2011, adding 12.9 terabits of bandwidth. This will provide Africa with unprecedented international bandwidth and provide an impetus for the spread of terrestrial fibre networks.

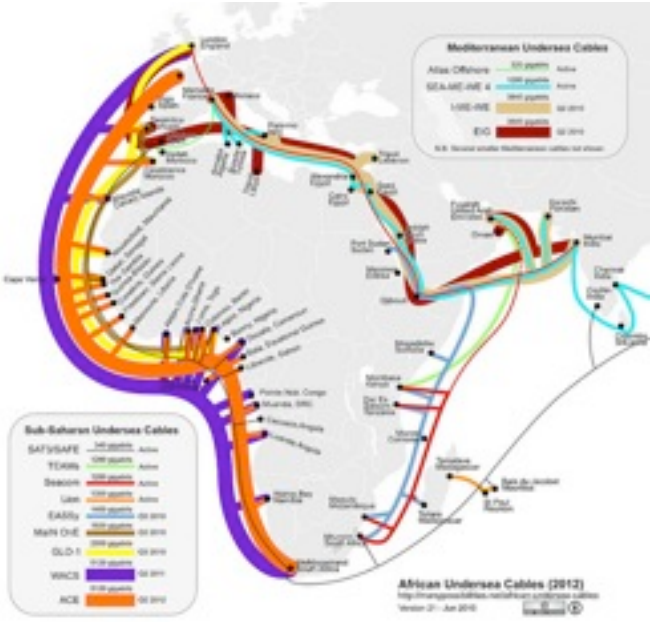

Figure 4-26 African Undersea Cables in 2012

Mobile operators' huge investments in these cables and will lead to them becoming carriers of traffic who lease capacity to others. This is a major shift from the previous positions as lessees of capacity on cables. MTN, for example, is the largest investor in the $600 million West Africa Cable System ("WACS"), the largest cable in respect of capacity. It will link countries in Southern Africa, West Africa and Europe with high capacity international bandwidth by 2011. It is highly likely that some of that international bandwidth be leased to other mobile operators, providing MTN with additional revenue while helping to reduce operational costs for its national operations that will use the capacity.

Region	Cable	Date to Go Live	Maximum Capacity
East Africa	ESSAy	July 2010	1.4 Tbps
	LION	November 2010	2.5 Tbps
West Africa	Main One	June 2010	2 Tbps
	WACS	2010	5.1 Tbps
	ACE	January 2012	1.9 Tbps

Table 4-4 Implementation Deadlines for African Submarine Cables

4.3.5. Branding

Branding is a critical component of regional operators' business strategy. Effective branding improves group cohesion, helps operators differentiate themselves and ultimately sustain or increase market share. Trust, reliability and dependability have always been important messages for operators to convey in their branding. Yet creativity, innovation and excitement are becoming equally important for mobile operators' target markets, which are comprised of young, service-hungry consumers. The importance of branding is indicated by the expense some

operators have employed to rebrand entire operations despite already having a strong brand presence. Zain's simultaneous rebranding of all its operations in August 2008, which saw it change from the well-established CELTEL brand to Zain[41], and Telefónica's current rebranding of its entire operation to Movistar in order to "suit the current state of the market and meet new customer demands"[42] are just two examples of costly yet important brand exercises.

Figure 4-27 Bharti Airtel Increasing Service Offerings

The importance of branding is likely to increase in the future, as competition increases and the cost of services to the consumer continues to fall. As tariffs and tariff differentiation decrease, so does the consumer distinction between operators. In 2008, the chairman of Bharti Airtel, India's leading mobile operator, suggested that consumers in India's highly competitive mobile market have become agnostic about tariffs (India has some of the lowest tariffs in the world) and that competition in India will centre on branding and services.

4.3.6. Innovative Services and Applications

The provision of innovative applications, content and services has become a critically important part of business strategy, as ARPU falls, competition increases, and functionality of mobile technologies improves. Providing services other than traditional voice and SMS helps operators increase revenue, differentiate themselves from competition, segment the market, as well as move away from traditional drivers of revenue, and improve profit margins.

> "The strategy going forward will focus on taking a bigger share of the customer's entire wallet, not just his or her telecoms wallet"
>
> Deputy CEO
> Bharti Airtel

To date, the majority of value-added services have centred on infotainment such as games, ringtones, news and caller ring-back tones (CRBT). More recently, with the implementation of higher bandwidth infrastructure and increased penetration of more sophisticated mobile devices, subscribers have been able to access richer services such as broadband internet and IPTV. The development of innovative services opens up a wealth of opportunities to gain a foothold in other lucrative sectors, including agriculture, commerce, health and banking. In

[41] Zain. 2008. The Power of One: Annual Report 2008. [online]. Available from: http://www.zain.com/muse/obj/lang.default/portal.view/content/Investor%20relations/Financial%20Reports/Annual%20Reports [Accessed 5th October 2010].

[42] Telefonica. 2008. Annual Report 2008. [online]. Available from: http://informeanual.telefonica.es/upload/ing/memorias/IA08_Ing.pdf [Accessed 5th October 2010].

2008, Sanjay Kapoor, then Deputy CEO of Bharti Airtel, articulated this point effectively: "The strategy going forward will focus on taking a bigger share of the customer's entire wallet, not just his or her telecoms wallet".[43]

In the last three years, mobile banking and money transfer has come to the fore, and all the operators have made the provision of m-banking/ money transfer services a key part of their strategy. Much of this has been due to the success of Safaricom's M-PESA in Kenya and the way it has proved the viability and perhaps more importantly the profitability of mobile banking and money transfer since its launch in 2007. Recent reports suggest M-PESA now accounts for 48% of Safaricom's data revenue, which rose by 78% last year. Moreover, it accounts for 18% of the company's profits.[44]

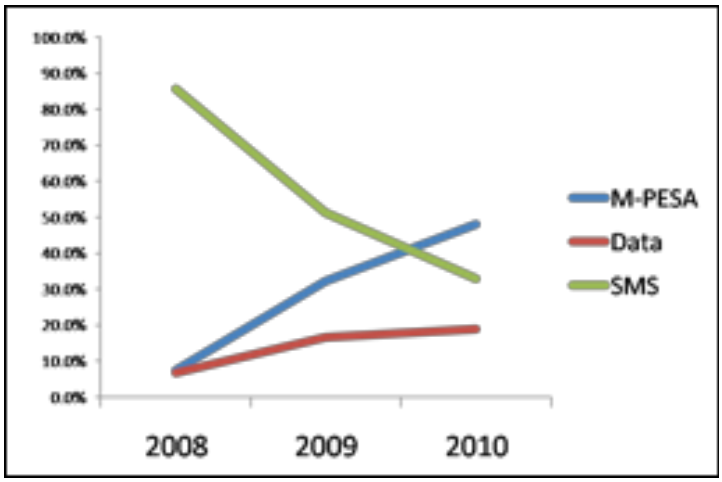

Figure 4-28 Rise of M-PESA 2008 – 2010. [M-PESA as a percentage of Safaricom's data revenue. ©CGAP analysis]

There are an increasing number of operators forming collaborations with banks in order to develop and roll-out of m-banking and money transfer services. Axiata's Dialog has partnered with the National Development Bank PLC of Sri Lanka to introduce EZ Pay, which was South Asia's first mobile payment and banking network. Etisalat has also partnered with the Emirates National Bank of Dubai (ENBD) with the aim to "revolutionise banking technology".[45]

The m-finance services being created may provide a wealth of opportunities that UNICEF operations can leverage. A straightforward use is to make payments to staff and suppliers via mobile systems; some country staff are aware of the possibility, but even this is not yet common practice. Aside from security of transfer, the mobile system provides electronic records of transfers, making for more reliable bookkeeping.

The ability to make direct payments to individuals opens up opportunities for more fundamental changes in programming. The received wisdom among field-level NGOs is to minimise the access to cash, preferring to provide support in kind, e.g. food. The poor reach of banks into rural areas means that transferring cash involves a long delivery chain, and each pair of hands in the chain provides an opportunity for cash to go missing. The advent of mobile cashless money transfer changes all this, so programming may now explore new ways of supporting beneficiaries based on direct financial support where appropriate.

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[43] Sanjay Kapoor was appointed CEO of Bharti Airtel India in April 2010.

[44] Pickens, M. (7 June 2010) Proof mobile money can make money? M-PESA earns serious shillings for Safaricom. CGAP [online]. Available from: http://technology.cgap.org/2010/06/07/proof-mobile-money-can-make-money-m-pesa-earns-serious-shillings-for-safaricom/?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+cgaptechnology+%28CGAP+Technology+Blog%29 [Accessed 22nd September 2010]

[45] Etisalat. 2008. Annual Report 2008. [online]. Available from: http://www.etisalat.ae/assets/docs/financial/2007Flash/Flash2008/pdfs/english/etisalat_en08.pdf [Accessed 5th October 2010].

In keeping with an equity-based approach to programming, providing direct support through mobile payments may prove to be the best way to increase use of services. The provision of money has the potential to help recipients meet the direct and indirect cost involved in using services that often prove to be a major barrier to the poorest and most vulnerable.

Despite the opportunities, establishing the regulations to enable transformational mobile money services remains a challenge in most interested countries. Both financial services and telecommunications are relatively well regulated sectors, but mobile money requires coordination between the two. India is a high profile example of how regulation for m-banking can take time. Despite huge demand for the services, the framework for regulating the services was only agreed in 2010. Until then, its financial regulation stipulated that funds could not be held overnight by a non-financial institution; meaning that mobile companies could not provide m-banking services. It is possible that countries with less developed financial and ICT regulatory systems will experience similar delays.

The potential benefits to programming and the private sector's enthusiasm for m-banking suggests UNICEF's assessment of m-banking and how it can be used in programmes must start now. The development community is currently encouraging dialogue through initiatives such as the World Bank's Consultative Group to the Poor (CGAP) and GSMA's Mobile Money for the Unbanked programme (funded by the Bill and Melinda Gates Foundation), and the private sector is actively engaged through events such as the annual GSMA Mobile Money Summits, sponsored by the International Finance Corporation and DFID. It is important that UNICEF engages in these activities in order to keep abreast of developments and undertake further analysis of opportunities for UNICEF in this area to fully appreciate how m-banking may be used in programming. Getting involved should also enable UNICEF to collaboratively shape future developments so m-finance can be best used in the organisation's programming.

4.3.7. Convergence

Convergence of devices and infrastructure is driving operators to follow strategies that will enable them to provide services that are traditionally provided on three screens – television, computer, and mobile – through their networks, and increasingly upon mobile devices. Network infrastructure that allows operators to provide voice alongside bandwidth intensive services like broadband Internet and TV has opened up a wealth of opportunities for operators.

Many also recognise that the convergence of devices will continue, and mobile phones are likely to become many users' computer, telephone and TV rolled into one. Telefonica is creating new services "based on the convergence of three screens (television, personal computer, and mobile)".[46] Similarly Vodacom's strategy is partly dictated by "the rapid convergence of new information and communication technologies"[47]; and Orange has three pillars to its strategy, including "convergence that is being driven by the ubiquitous digital technology, with a shift from a network access vision to a services access vision".[48]

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[46] Telefonica. 2008. Annual Report 2008. [online]. Available from: http://informeanual.telefonica.es/upload/ing/memorias/IA08_Ing.pdf [Accessed 5th October 2010].

[47] Vodacom. 2009. Vodacom Group Limited Annual Report: for the year ended 31 March 2009. [online]. Available from: http://www.vodacom.com/reports/ar_2009/pdf/full.pdf [Accessed 5th October 2010].

[48] France Telecom. 2008. Annual Report and Corporate Social Responsibility Report. [online]. Available from: http://www.orange.com/en_EN/finance/documentation/annual-reports/att00014094/annual-report2008_en.pdf [Accessed 5th October 2010].

The network diagram in Figure 4-29 illustrates the hypothetical ecosystem of a regional operator that is following many of the strategic objectives outlined above. The diagram displays the demand flows stemming from the operators' various businesses. It indicates that many operators are developing structures that make them highly self-sufficient, deriving goods and services necessary to the operation from other entities within the group. The diagram also highlights the benefits of negotiating with operators at a regional level, as they have control over so many entities in the group and leverage economies of scale in respect of a number of sectors, not just mobile telephony.

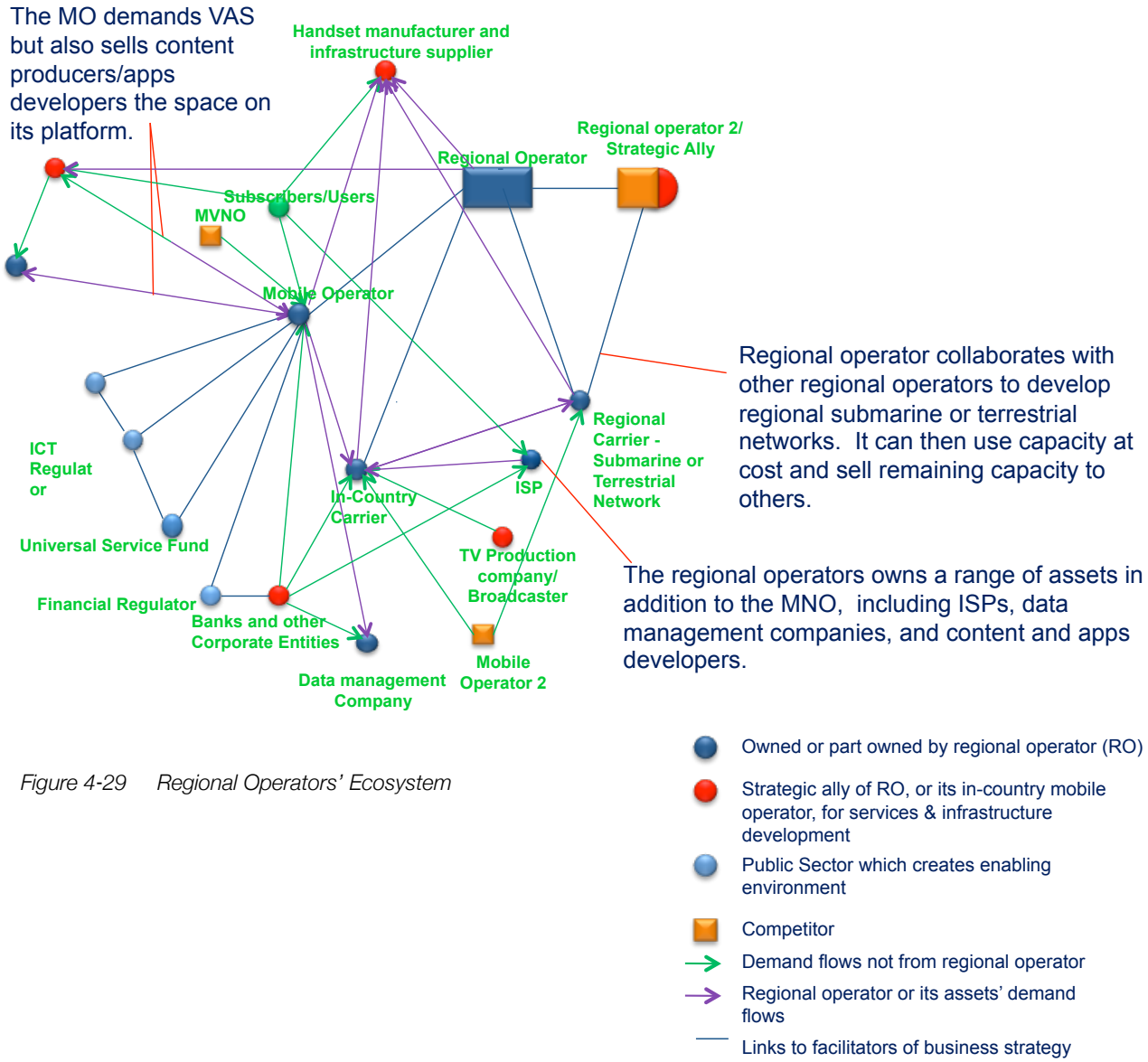

Figure 4-29 Regional Operators' Ecosystem

4.4. Trends and Common Themes in Corporate Social Responsibility

Corporate Social Responsibility (CSR) has become a key focus area for all regional mobile operators. Although some point to a decade of CSR initiatives, for many operators it is a relatively new consideration. Most now appreciate that a good, comprehensive CSR strategy can help a company fulfill its strategic objectives while addressing the priorities of its many stakeholders – employees, shareholders, government and the wider society. In light of this, many operators have established foundations to undertake their CSR activities. In many cases, these foundations are registered charities in the countries of operation.

Some CSR objectives, such as improved customer service or more effective staff training, are designed to have a direct impact on the company's revenue and levels of shareholders' satisfaction. Others are intended to have a direct impact on the livelihoods of those citizens served by the operator and tackle development challenges in health and education.

Private sector representatives suggest that CSR departments have very small budgets, little key decision making power and are not particularly connected to the operator's key business units. Many in the M4D Community confirmed this assertion, with some suggesting they prefer to deal with executives in commercial business units who can undertake larger initiatives in half the time.

As noted in Section 6 of this report, UNICEF's engagements with mobile operators have been predominantly instigated through contact with CSR departments and foundations. Though this has proved helpful when establishing pilots, some have questioned whether CSR departments are the best area of a mobile operator's business to engage with for scalable projects. Consultations with mobile operators seem to support the scepticism. Private sector representatives suggest that CSR departments have very small budgets, little key decision making power and are not particularly connected to the operator's key business units. Many in the M4D Community confirmed this assertion, with some suggesting they prefer to deal with executives in commercial business units who can undertake larger initiatives in half the time.

Despite the scepticism, CSR departments are perceived by many as the most appropriate department with which to engage; there is a record of successful engagement for pilot projects and in many cases, they are happy to consider proposals despite the lack of a rigorous business case being put forth by development organisations. Therefore CSR departments continue to be a key area of engagement for many development organisations.

Understanding operator's areas of focus will be important for all those attempting to use M4D in connection with CSR. The CSR reports of those regional operators assessed during the Mobiles for Development study highlight some common themes in CSR strategies and therefore indicate some trends in CSR activities. Table 4-5 on the following page details these common themes, as well as objectives and activities that operators focus on.

CSR initiatives that have a direct impact on key development challenges are of particular interest to those trying to meet the MDGs. The following provides some pertinent examples of initiatives that may have a positive impact upon efforts to improve development outcomes with regards to health, education, child protection, environment, economic and social well-being, and disaster management and emergency relief.

Common CSR Theme	Example of Activities or Objectives
Consumer Protection/Satisfaction	• Ensure fair pricing and transparent marketing • Protect customer information and data • Improve response rate from customer call centers
Staff retention and well being	• Improve education and training for staff • Improve employees work-life balance • Provide platforms for employee consultation and feedback mechanisms to encourage open dialogue in the work place
M-Content Services, Value-Added Services, and Applications	• Providing money transfer and mobile banking • Connecting blood banks • Authenticating drugs and medication • Provision of educational content using networks • Providing market prices for agricultural products • Providing trading platforms for sellers and buyers • Medical diagnosis services
Universal Service and Digital Inclusion- Extending Services	• Provision of mobile phone services in hard to reach or vulnerable areas • Provision of internet cafes or phone booths in underserved areas or for segments of society with low levels of mobile phone ownership
Environment	• Measurable levels of external stakeholders' satisfaction with the way BTS masts are erected • Cut CO2 emissions through, amongst other things, efficient energy usage • Increase infrastructure sharing • Use of carbon credits • Reducing staff travel • Reducing waste
Child Protection	• Protecting children from the abuses of the Internet with free parental safeguards • Providing children with facilities to make calls in emergencies • Providing ICT facilities to schools • Collaborating with or funding organizations who work to stop abuse of children, bullying of children, trafficking of children and child labor
Health	• M-Health initiatives • Rebuilding hospitals • Improving water and sanitation • Health education campaigns • HIV/AIDs prevention drives and anti-discrimination/stigma initiatives, immunization campaigns with ministry's of health or NGOs, distribution of drugs and vitamins • Provision of equipment for healthcare professionals • Health of employees
Education/Vocational Training	• Scholarships, ICT capacity building • Developing centers of excellence for gifted students • Building schools for the most disadvantaged • Provision of vocational training for the young

Common CSR Theme	Example of Activities or Objectives
Economic and Social Wellbeing	• Sponsorship of sports, music and cultural events • Increasing rural connectivity and providing services to the marginalized i.e. disabled or the elderly • Development/establishment of sporting facilities • Promotion of equal opportunities in society • Staff volunteering to rebuild community centers, health clinics, churches and mosques; • Supporting organizations working on community mediation • Staff donating money to charitable causes
Disaster Management and Emergency Relief	• Responding to natural and manmade disasters by establishing emergency communications • Contributing funds or technical expertise to other disaster management focus organizations such as the Red Cross or Doctors Without Borders • Provisions of services such as SMS short codes to enable fundraising by other organizations
Fair and Ethical Business Practices	• All operations and suppliers following mainstreamed code of ethical practice

Table 4-5 Common CSR Themes for Mobile Operators

4.4.1. Health

Most health CSR initiatives focus on

- improving health facilities or access to those facilities
- the promotion of good health and preventative measures
- improving access to medical information for marginalised groups such as the disabled or those in rural areas
- exploring how mobile technology can provide assistance to health workers and users.

Although infectious diseases like malaria, Hepatitis B, and polio are targeted, HIV/AIDS is the main health challenge addressed through CSR initiatives and HIV/AIDS awareness raising campaigns are the most frequently mentioned activities with regards to illnesses. Operators sought to increase understanding of the threat posed by the disease amongst employees and citizens, disseminate information to promote open dialogue, and attempt to remove the stigmas attached to HIV/AIDS.

Some operators provide support for those affected, either through the provision of anti-retroviral drugs, capacity building with integrative responses shaped into community structures or with technology-based solutions. Vodacom South Africa, for example, invested more than R6 million in Cell-Life, an organisation which developed cell phone software that helps manage the treatment regime for HIV-positive patients. The investment also assisted Cell-Life in developing Intelligent Dispensing of ART (iDART), software that improves the process of dispensing Antiretroviral Therapy (ART). This system has already been rolled out to 20 clinics across South Africa. Cell-Life is also driving the 'Cellphone 4 HIV' project, which provides an information and communication platform for everyone affected by HIV, including healthcare professionals.[49]

[49] Vodacom. 2009. Vodacom Group Limited Annual Report: for the year ended 31 March 2009. [online]. Available from: http://www.vodacom.com/reports/ar_2009/pdf/full.pdf [Accessed 5th October 2010].

Improving access to health services for remote communities, in order make treatment more easily available and manageable for rural healthcare workers, is another key theme in CSR. Activities vary and include the provision of free paediatric mobile out-patient clinics and donations of equipment for telemedicine. In India, where 70% of the population live in rural areas, Bharti Airtel's Airtel Cares for Everyone is an innovative initiative – in collaboration with Jeevan Blood Bank – that uses SMS technology to speed up the transfer of information between blood banks, and improve the process of giving and receiving blood. Before travelling to urban areas for treatment, users can get information on the availability of blood and stocks of tested blood components in real-time, 24 hours a day.[50]

The livelihoods of the disabled are a key consideration and a number of CSR initiatives seek to improve and increase the range of opportunities open to the disabled. A number of operators tried to address challenges including the need for adapted facilities, access to training, and improve understanding of their disability. For example, Digicel Jamaica gave the Jamaican Society for the Blind a donation of a new eight-seated bus and also provided special tape recorders for the blind, talking calculators, Braillers, and white canes.[51]

Finally, safe drinking water is essential for stopping diseases and illnesses, and many operators have made efforts for improvements in their respective countries. Some have organised the provision of water tanks, towers and boreholes that have improved sanitation in urban areas, and worked on campaigns to provide uncontaminated water. Etisalat and Care International have partnered to deliver Origin, a nationwide project designed to help relieve Egypt's water dilemma. Amongst other things, it aims to bring safe drinking water to the homes, schools and medical units of deprived villages.[52]

4.4.2. Education

CSR initiatives in the area of education are particularly focused on improving educational facilities, literacy levels, ICT capacity, providing technological equipment to schools, addressing special needs and providing scholarship programmes. Many operators target underprivileged children and those living in rural areas, where the problem of poor access to education can be particularly acute. In addition, a number are exploring the ways in which mobile devices and network technology can be used to improve education.

Scholarships are the most frequently featured CSR activity in education. The majority of the operators offer or support some form of scholarship or mentorship programme. Most of the scholarships are for higher education, often for areas of study that could vastly benefit the ICT sector, such as business, management, engineering, and telecommunications. A few initiatives provide opportunities for the most able students to study abroad, in a more developed country. The idea behind these scholarships is for the student to acquire knowledge and experience from more developed countries, to then utilised in their own country when they return.

Many operators have initiatives that aim to improve the quality of education by improving the facilities through the funding or donation of supplies and equipment, and the construction of schools, libraries, resource centres,

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[50] Bharti Airtel Limited. 2009. Annual Report 2008-2009. [online]. Available from: http://www.airtel.in/wps/wcm/connect/df9319004ef43b779a869bca93586a5d/14th_Annual_Report_2008-2009_n.pdf?MOD=AJPERES&CACHEID=df9319004ef43b779a869bca93586a5d [Accessed 5th October 2010].

[51] Digicel Foundation. 2009. Annual Report 2008/2009. [online]. Available from: http://www.digiceljamaicafoundation.org/foundation/assets/uploads/DIGIFOUNDATION_09_ANNUAL.pdf [Accessed 5th October 2010].

[52] Etisalat. 2008. Annual Report 2008. [online]. Available from: http://www.etisalat.ae/assets/docs/financial/2007Flash/Flash2008/pdfs/english/etisalat_en08.pdf [Accessed 5th October 2010].

computer labs, and auditoriums. For example, Zain's Build Our Nation initiative has led its operations in Sierra Leone, Niger, Kenya, Democratic Republic of the Congo and Tanzania to build and renovate schools across each country.[53]

Low levels of literacy are a major impediment to development and therefore many operators try to promote literacy through community development programmes and training. Many literacy programmes target the most underprivileged or marginalised children. Indonesia's Axiata donated a mobile library to the outer slums of Jakarta to encourage underprivileged children to read. In Bangladesh, the Axiata operator Bodi initiated the "Underprivileged Children's Educational Programmes (UCEP-Bangladesh)", which provides world-class teaching and learning resources.[54]

Some operators have a particular interest in assisting girls to access education in order to achieve the gender related MDG targets for education. The Orange Foundation promotes females' social and professional autonomy by attempting to improve literacy and promoting education for girls.[55] Other operators have established fellowship programmes to assist underprivileged girls go on to higher education, and others to build skills and knowledge in various areas.

Digital access to information and infrastructure is essential as an educational empowerment tool at all levels of education. Many provide Internet connectivity that enable students to gain access to global knowledge banks. This not only improves education but it is also beneficial to the ICT sector because their investment in youth will feed into the development of the ICT sector when recipients enter the workforce. A limited number have worked to develop and deliver educational content through their networks. For example, in collaboration with the Ministry of Education, Dialog Sri Lanka, a subsidiary of Axiata, provides 12 hours of educational content per day to 1,000 schools across the country as part of its NENSA initiative.

4.4.3. Child Protection

Few operators undertake child protection activities beyond those to prevent children accessing inappropriate content on the Internet and those that fall under the banner of education. The operators that have implemented child protection initiatives focus on providing care and support for orphans, disadvantaged children, and children living with disabilities. Activities included the provision of funding, staff volunteers visiting the children, organising events, and building their self-esteem and skills.

Although there are few examples detailed in the operators' CSR reports, some operators have tried to tackle issues such as child labour, prostitution and trafficking through improved education. For example, 10 organisations and operators founded the Mobile Alliance Against Child Sexual Abuse Content, which aims to stop the abuse of children. It also supported ECPAT International (End Child Prostitution, Child Pornography and Trafficking of

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[53] Zain. 2008. The Power of One: Annual Report 2008. [online]. Available from: http://www.zain.com/muse/obj/lang.default/portal.view/content/Investor%20relations/Financial%20Reports/Annual%20Reports [Accessed 5th October 2010].

[54] Axiata Group Berhad. 2008. Annual Report 2008. [online]. Available from: http://axiata.listedcompany.com/misc/ar2008.pdf [Accessed 6th October 2010].

[55] France Telecom. 2008. Annual Report and Corporate Social Responsibility Report. [online]. Available from: http://www.orange.com/en_EN/finance/documentation/annual-reports/att00014094/annual-report2008_en.pdf [Accessed 5th October 2010].

Children for Sexual Purposes), a global network of organizations and individuals working together for the elimination of child prostitution, child pornography and the grooming of children for sexual purposes.[56]

4.4.4. Environment

As one would expect, most operators have an environmental policy to reduce their carbon footprint and to minimise their overall environmental impact. Energy is a key issue for operators, partly because networks require considerable amounts of electricity, which has a huge impact on operational costs, especially those base stations that are dependent on diesel-fuelled generators. Many have introduced energy efficient policies and sought alternative energy sources to reduce their carbon footprint and cut operational costs. There are numerous examples of operators rolling out hybrid base stations. Others efforts include awareness-raising campaigns on environmental issues, infrastructure sharing and mobile phone recycling initiatives. Etisalat in the United Arab Emirates (UAE), for example, supports the a national mobile phone recycling initiative, Envirofone, which to date has collected over 200,000 phones and recycled over 52 tons of electronic waste.[57]

4.4.5. Economic and Social Wellbeing

All operators believe bridging the digital divide is essential for improving the economic and social wellbeing of their subscribers. Most CSR reports highlight regional operators' successful provision of network access and how that access is used to improve livelihoods. They also point to an increasing range of services that are designed to reduce vulnerability and catalyse entrepreneurism. Examples include money transfer and m-banking services such as M-PESA.

While increasing access and developing commercial services like M-PESA is very much part of an operator's day-to-day business, there are non-commercial initiatives specifically designed to improve people's well-being and economic status. Some contribute to rural empowerment, while others sought to empower women through micro-finance projects, vocational learning initiatives and the provision of low cost housing. Other CSR initiatives under the theme of economic and social wellbeing were based around culture, sports advocacy, and donating to charities.

4.4.6. Disaster Management and Emergency Relief

In the aftermath of disasters, some companies came to the aid of affected communities through financial donations and the provision of emergency communications. Furthermore, some operators have invested in research that will help predict disasters sooner and use mobile technologies in early warning systems. Dialog Sri Lanka worked with Disaster and Emergency Warning Network (DEWN) to develop a DEWN Early Warning System.[58] SINGTEL provided funding for disaster relief assistance after earthquakes in China, May 2008 and supported the Salvation Army Bushfire Appeal in Victoria, Australia, in 2009.[59]

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[56] TeliaSonera. 2009. Corporate Responsibility Report 2009. [online]. Available from: http://www.teliasonera.com/Global/Reports/2009/CRReport_en.pdf [Accessed 6th October 2010].

[57] Etisalat. 2008. Annual Report 2008. [online]. Available from: http://www.etisalat.ae/assets/docs/financial/2007Flash/Flash2008/pdfs/english/etisalat_en08.pdf [Accessed 5th October 2010].

[58] Axiata Group Berhad. 2008. Annual Report 2008. [online]. Available from: http://axiata.listedcompany.com/misc/ar2008.pdf [Accessed 6th October 2010].

[59] Singapore Telecommunications Limited (SingTel). 2009. Annual Report 2008/2009. [online]. Available from: http://info.singtel.com/sites/default/files/invrel_areports/SingTel%20AR%202008-09.pdf [Accessed 6th October 2010].

Table 4-6 indicates the regional operators' regions of operation and the development-focused CSR areas that they focus upon. Short summaries of each operators' CSR focus can be found in Annex 2 of this report.

Operator	Regions of Operation	Area of CSR
Tigo	Africa Latin American and Caribbean Asia Pacific	• Health • Education/Vocational Training • Environment
Etisalat	Africa Asia Pacific MENA	• Health • Education/Vocational Training • Universal Service and Digital Inclusion • Economic and Social Wellbeing • Environment
MTN	Africa MENA Asia Pacific	• Health • Education/Vocational Training • Child Protection • Universal Service and Digital Inclusion • Economic and Social Wellbeing • Environment
Zain	Africa MENA	• Health • Education/Vocational Training • M Content Services and VAS Applications • Universal Service and Digital Inclusion • Economic and Social Wellbeing • Environment
Econet	Africa	• Health • Education/Vocational Training • Child Protection • Economic and Social Wellbeing • Environment
Vodacom	Africa	• Health • Education/Vocational Training • Economic and Social Wellbeing • Environment
Orange	Latin America and the Caribbean Africa MENA CIS Europe	• Health • Education/Vocational Training • Child Protection • Universal Service and Digital Inclusion • M Content Services and VAS Applications • Economic and Social Wellbeing • Environment
Digicel	Latin America and the Caribbean	• Health • Education/Vocational Training • Child Protection • Economic and Social Wellbeing • Disaster Management and Emergency Relief
Cable and Wireless	Latin American and the Caribbean	• Health • Education/ Vocational Training • Child Protection • Economic and Social Wellbeing • Environment

Operator	Regions of Operation	Area of CSR
Telefonica	Latin American and the Caribbean CIS MENA North America Europe	• Health • Education/ Vocational Training • Child Protection • Universal Service and Digital Inclusion • Environment
Bharti Airtel	Asia Pacific Africa	• Health • Education/ Vocational Training • Child Protection • Universal Service and Digital Inclusion • Economic and Social Wellbeing • Disaster Management and Emergency Relief
Axiata	Asia Pacific MENA	• Health • Education/ Vocational Training • Universal Service and Digital Inclusion • Economic and Social Wellbeing • Disaster Management and Emergency Relief • Environment
Telenor Group	Asia Pacific CIS Europe	• Health • Education/ Vocational Training • Universal Service and Digital Inclusion • Economic and Social Wellbeing • Environment
Singtel	Asia Pacific	• Health • Education/ Vocational Training • Child Protection • Economic and Social Wellbeing • Disaster Management and Emergency Relief • Environment
Orascom	MENA Africa Asia Pacific North America	• Health • Education/ Vocational Training • Child Protection
Vodafone	MENA Africa Asia Pacific CIS Latin America and the Caribbean Europe	• Health • Child Protection • M Content Services and VAS Applications • Economic and Social Wellbeing • Environment
TeliaSonera	CIS Asia Pacific Europe	• Health • Education/ Vocational Training • Child Protection • Economic and Social Wellbeing • Environment
T-Mobile	CIS Europe North America	• Health • Education/ Vocational Training • Universal Service and Digital Inclusion • Economic and Social Wellbeing • Environment
Hutchison Telecom	Asia Pacific	• No specified CSR Initiatives
América Móvil	Latin America and the Caribbean North America	• No specified CSR Initiatives

Table 4-6 Summary of Operators' Development-Focused CSR Initiatives

5. External Mapping: Mobile Applications Environments in 14 Country Case Studies

This section of the report details key findings from the analysis of the mobile applications environments of the 14 Case Study Countries. The countries were chosen for one or more of the following reasons:

- UNICEF has already worked on mobile-supported programs in the country and found there is local interest in widening and/deepening M4D work.
- The relevant country office is developing mobile-driven or mobile-supported programmes
- The relevant country office is particularly dynamic and keen on leveraging mobiles.
- UNICEF believe their programmes could be bolstered by leveraging mobile telephony, due to a combination of country specific ICT factors and UNICEF factors such as its focus areas and programmes.

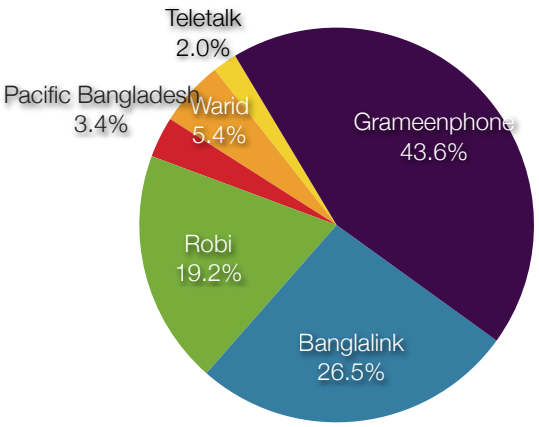
The analysis begins with a brief snapshot of the ICT sector in each country. It then provides key findings about the application environments that were developed using data collected from consultations with senior executives from mobile operators in each country (Annex 1 provides a full list of mobile companies consulted). The consultations involved six key areas of investigation:

1. What are the most popular non-voice and non-peer-to-peer SMS services in each country?
2. What, if any, applications, content or services that support development aims are being utilised?
3. What was the capacity of the mobile development community?
4. What are the key challenges to the use and development of applications, content and services in each country?
5. What are the current CSR activities of operators consulted and how do their CSR departments work?
6. What do operators perceive as benefits of working with UNICEF on M4D collaborations?

5.1. Case Study Countries ICT Sector

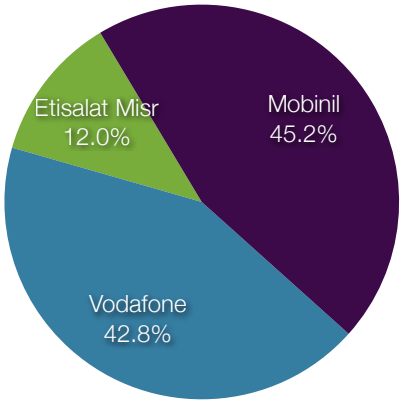
In line with the rest of the world, mobile telephone usage in all 14 of the Case Study Countries is far greater than fixed line usage. All the countries have liberalised their mobile sectors and, although the degree of competition varies, this has resulted in rapid mobile growth. The Philippines had the highest mobile penetration rate in 2008 with 75.39%, and it is one of three countries with 6 licensed operators. Malawi had the lowest mobile penetration rate with 12% and the lowest number of operators. Egypt had the highest Internet penetration rate with 16.65% in 2008, while Sierra Leone had the lowest with 0.35%.

Bangladesh



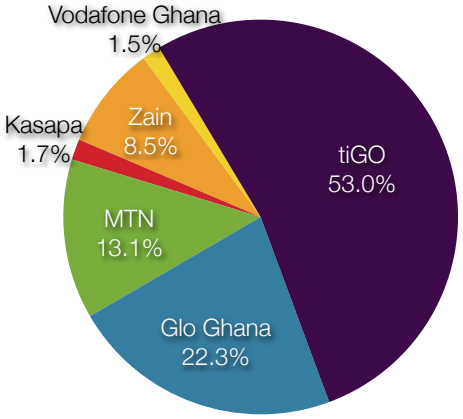
Mobile Penetration Rate: 31.07%
Population Covered by Mobile Signal: 90%

Egypt



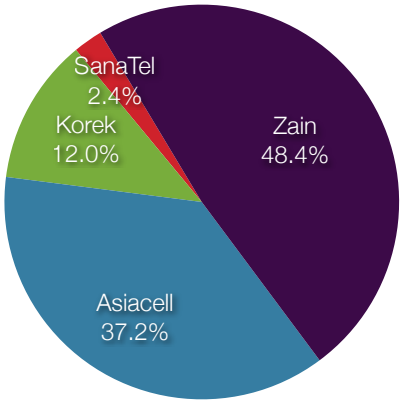
Mobile Penetration Rate: 50.62%
Population Covered by Mobile Signal: 95%

Ghana



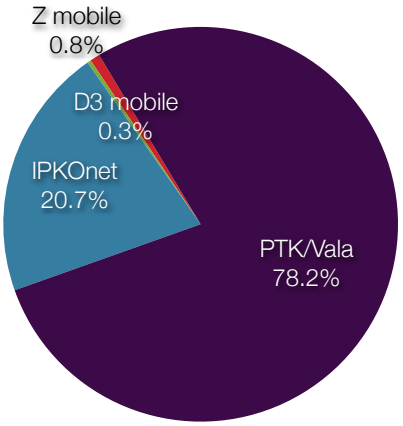
Mobile Penetration Rate: 49.55%
Population Covered by Mobile Signal: 73%

Iraq



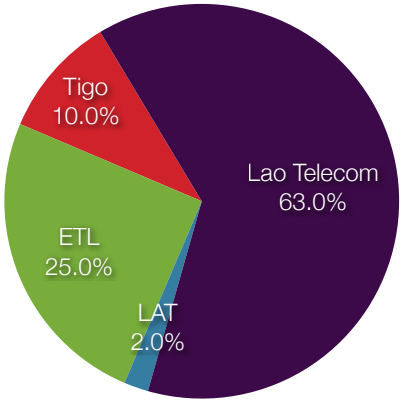
Mobile Penetration Rate: 58.24%
Population Covered by Mobile Signal: 72.1%

Kosovo



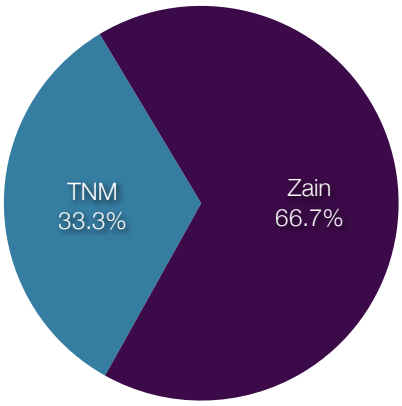
Mobile Penetration Rate: 49.55%
Population Covered by Mobile Signal: 73%

Lao PDR



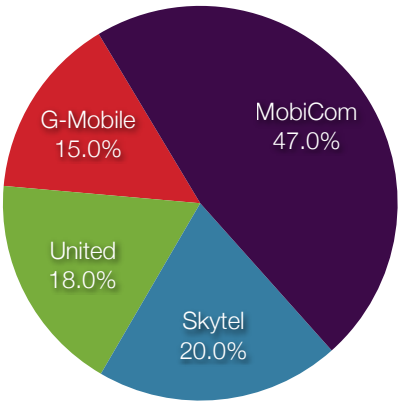
Mobile Penetration Rate: 32.59%
Population Covered by Mobile Signal: 55%

Malawi



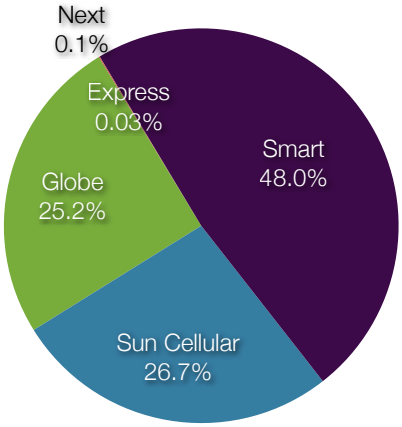
Mobile Penetration Rate: 12%
Population Covered by Mobile Signal: 93%

Mongolia



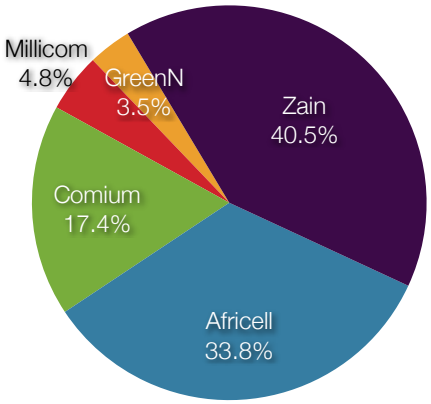
Mobile Penetration Rate: 50.62%
Population Covered by Mobile Signal: 95%

Philippines



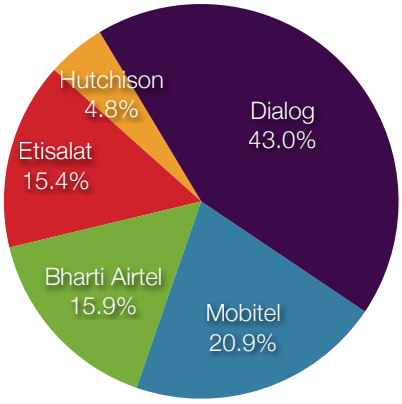
Mobile Penetration Rate: 75.39%
Population Covered by Mobile Signal: 99%

Sierra Leone

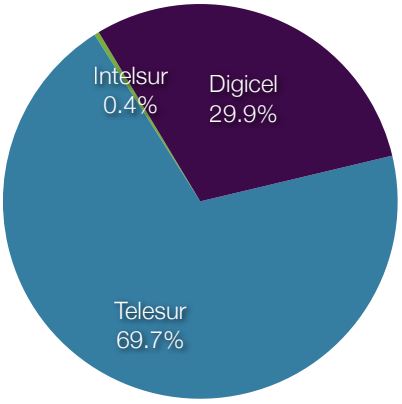


Mobile Penetration Rate: 18.14%
Population Covered by Mobile Signal: 70%

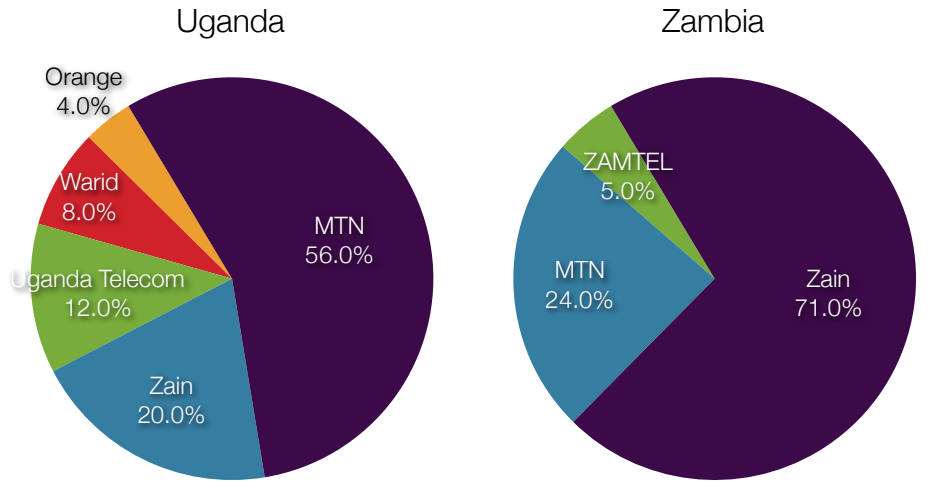
Sri Lanka



Suriname



Mobile Penetration Rate: 98%
Population Covered by Mobile Signal: N/A



Mobile Penetration Rate: 27.02%
Population Covered by Mobile Signal: 100%

Mobile Penetration Rate: 31.07%
Population Covered by Mobile Signal: 90%

5.2. Mobile Applications Environment: Most Popular Services

Understanding what value-added services (VAS) are most popular and the reason for their popularity is important, as they provide insights that can feed into the development of M4D applications, services and content. Research undertaken by CTO and Gamos with rural and urban users in India, Ghana, Uganda and South Africa concluded that infotainment services – a mix of entertainment and information services – were the most popular services.[60] [61]Their pervasiveness and the limited availability of development-focused mobile services was an important factor in people's choices – many said they would use, and pay for, more M4D services if they were made available. Consultations confirm this previous conclusion, as infotainment services are the most popular in the 14 countries.

5.2.1. Caller Ring-Back Tones

Caller Ring-Back Tones (CRBT) and mobile Internet were by far the most popular non-voice, non-peer-to-peer SMS VAS across the 14 Case Study Countries. Personalisation, born from a desire to express one's personality and individuality to others, as well as users' love of unique and popular musical tones were the key drivers of CRBT usage in the large majority of countries. Its universal popularity confirms people's general love of music and the role it plays in driving the use of M4D services. Yet it also indicates how important self-expression and conveying one's personality is through the mobile phone – even for users in developing markets, who are highly price sensitive. This

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[60] Commonwealth Telecommunications Organisation (CTO). 2008. Towards Effective e-Governance: The delivery of public services through local e-content. [online]. Espoo. Nokia Siemens Networks Corporation and Nokia. Available from: http://cto.int/Portals/0/docs/research/towards-effective-egovernance/Towards_Effective_eGovernance.pdf [Accessed 6th October 2010].

[61] Commonwealth Telecommunications Organisation (CTO). 2008. Assessment of M-Content Requirements in India and Uganda. [online]. Stockholm. Ericsson AB. Available from: http://cto.int/Portals/0/docs/research/m-content/Assessment%20of%20M-Content%20Requirements%20in%20Indai%20and%20Uganda.pdf [Accessed 6th October 2010].

is evidenced by the nature of the services; CRBT seems to offer the person who subscribes to the service very little tangible benefit. Instead, the person calling the user hears the song and gets the benefit of the service.

CRBT also confirms how important it is to make services as accessible and easy to use as possible if they are to be used en masse. CRBT is usually accessed using SMS or interactive voice response (IVR); simple mobile phone applications that can be used on every mobile phone, from the most basic to highly sophisticated 4G smartphones. In addition, users do not have to be conventionally literate or ICT literate in order to use CRBT. In some countries, subscribing to CRBT is done by simply following a voice instruction to press a star button when one hears the song of the receiving party. Ease of use was cited as a critical driver of CRBT in Ghana, Egypt, Sierra Leone, Iraq and Sri Lanka.

5.2.2. Mobile Internet

As explained in Section 4 of this report, mobile Internet usage is growing in many of the Case Study Countries. Operators in Sierra Leone, Suriname, Kosovo, Sri Lanka, Ghana, Uganda and Iraq all cited it as one of their most popular services. Pent-up demand, due to the slow provision of fixed line dependent ADSL, and the falling cost of mobile Internet have been important drivers. The growing popularity of social networking, particularly amongst the young, has also been important. In the highly competitive and relatively more developed Philippines market, the recent introduction of improved data packages that enable users to access the Internet all day for a fixed fee, rather than pay for each megabit, has been an important driver of usage. The ability to control, or limit one's spending on services is critically important to users in less developed mobile markets and can actually increase usage of a service. While unlimited use packages are not widely found in the Case Study Countries, they give some indication of how mobile Internet pricing may soon be structured in those countries where a high level of competition exists.

5.2.3. Information services

Information services, which are usually related to sports and news, were very popular in countries such as Uganda, Ghana and Bangladesh. The key drivers in each of these countries were people's desire for information and their wish to be informed about current affairs. Users with any handset can access services, as they are provided in multiple formats, including SMS. It is critical that M4D services intended for mass use can be delivered via the simplest of applications, such as SMS, allowing widest accessibility and ease of use.

5.2.4. Financial Services

As stated in Section 4.2.6, most regional operators have already, or are currently in the process of, providing m-banking or money transfer services. In Sri Lanka, Uganda and the Philippines where money transfer, m-banking, and airtime transfers' services were being provided, they were amongst the 1st or 2nd most popular services. Key drivers were the large number of unbanked people and the countries' multi-spatial communities. Even in those countries where m-financial services were not currently available, operators were in the process of developing them and believed they would be highly popular.

5.2.5. Context Specific Services

There were some services that were highly popular in a handful of countries. In many cases, their popularity proves that despite the widespread popularity of some services, context is king. SMS Chat was a particularly popular service in Iraq due to the dangers involved in travelling to various areas of the country. Young Iraqis' desire to engage with people in other areas, and the high cost of internet due to a lack of international bandwidth -

international bandwidth in Iraq is provided through satellite - means SMS Chat is extremely popular amongst Iraqis who want to know more about fellow Iraqis living elsewhere.

Video on demand was popular in Egypt because of what operators termed as a culture of waiting and the need to relieve boredom; watching films and music videos on mobiles is a common way to pass the time. Multimedia messaging services (MMS) were more popular in Kosovo than other countries because SMS services were not popular or widely available. Distance calling was particularly popular in the Philippines and Mongolia from where many migrant workers to the wider Asian region and Middle East hail. Competitions, particularly those linked to TV votes, were popular in Zambia, Uganda and Iraq, driven by the prizes on offer and the well-liked TV shows.

A table that summarises the most popular services in each country and drivers of their popularity can be found in Annex 3 of this report. It also indicates what services were believed to be the second most popular.

5.3. M4D Applications, Content and Services: Project Database

5.3.1. Project Database Distribution

Few operators could tell us about M4D applications, content and services being used in their respective country. This confirms operators' current focus on providing the low-hanging fruit that is infotainment. The research and analysis in the 14 Case Study Countries produced a total of 192 M4D projects, programmes or services listed.

The project database distribution by countries in Figure 5-3 shows the distribution of M4D projects, programmes and services across the Case Study Countries. Uganda had the most M4D initiatives with 30% of the total. The relatively high number of initiatives in Uganda may indicate that it developed a critical mass of M4D initiatives, with a number of development organisations and NGOs in the country focused on using mobiles. This has helped prove the positive impact of M4D and thus, fuelled other initiatives This bodes well for other countries seeking to develop this critical mass. Bangladesh was second with 20% and the Philippines 3rd with 13%. Kosovo had no known M4D initiatives, while Suriname had two. Iraq, Sierra Leone, Lao PDR, Mongolia, Malawi, Zambia, Egypt, Sri Lanka and Ghana all fall between 2 to 8% respectively. Brief case studies on some of the M4D initiatives in the live list can be found in an accompanying report entitled UNICEF M4D Case Studies.

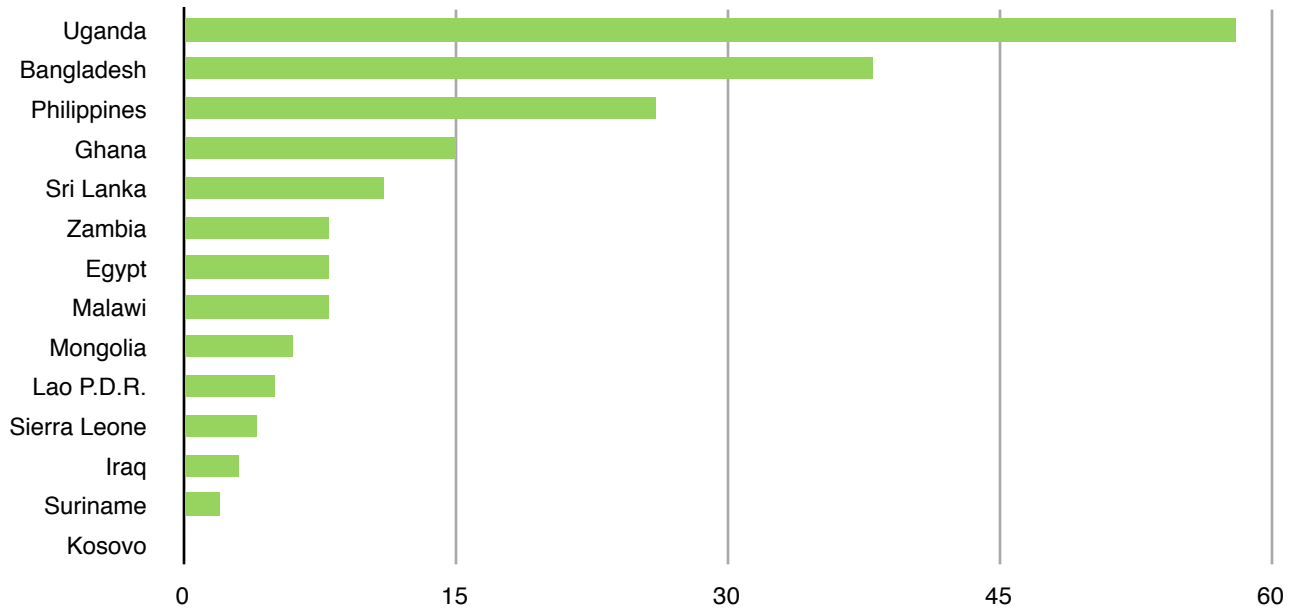

Figure 5-3 Project Database Distribution by Selected Case Study

The M4D initiatives in the Project Database are categorised as Agricultural, Health, Education, Socioeconomic, Child Protection, Gender, Humanitarian, M-Commerce, Political, Rural Connections, Environmental, and General. At the time of writing, health M4D initiatives accounted for the largest proportion of the listing, making up 32%. They are closely followed by socio-economic M4D initiatives at 15%, agriculture 13% and education 12%.[62]

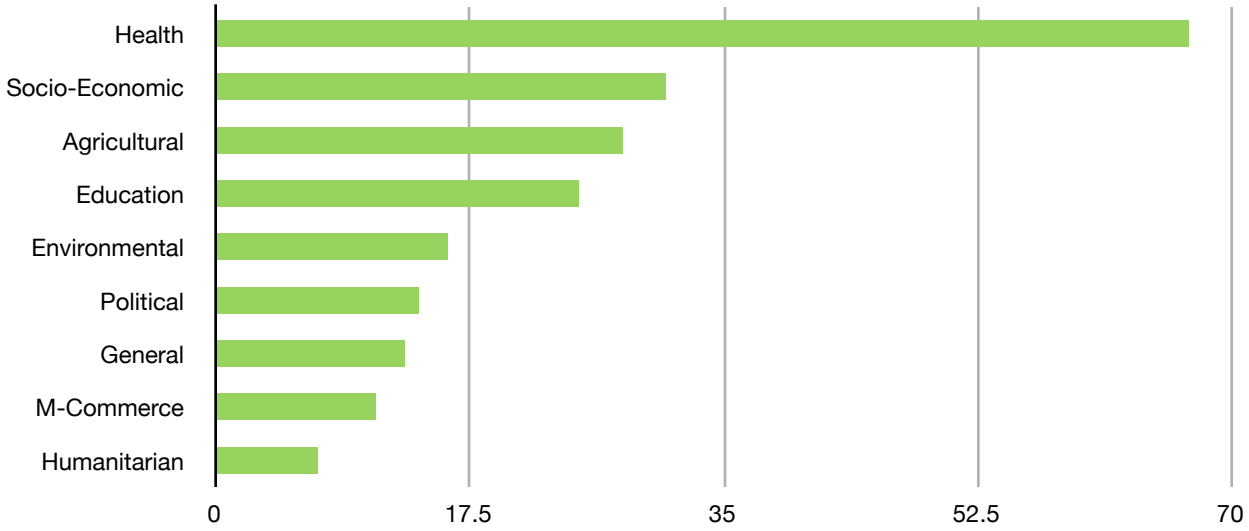

Figure 5-4 M4D Initiatives Distribution by Category

[62] Although a number of the M4D categories in the Project Database are typically encompassed in the term socio-economic, such as health and education, when socio-economic is referred to in this Project Database it contains those initiatives which do not fall into the specified categories but still fit into the term socio-economic.

Although education is reasonably represented across the 14 countries, there are not as many education M4D initiatives in the category as one may expect. According to some in the M4D community, it is difficult to develop M4D initiatives in education. Educational content needs to be highly context specific, and effectively delivering m-education services for basic mobile phones has proved difficult. One success of note is the Jokko Initiative, a UNICEF programme in Senegal developed in collaboration with Tostan, an NGO focused on community empowerment. Jokko has been successful in teaching women, teachers, community health workers, and other Senegalese villagers basic literacy and SMS skills. Yet demonstrated successes at scale in education have been fewer than those in the health sector, and the nascent space is ripe with unfulfilled potential.

Unsurprisingly, most of the initiatives in those countries that contribute most to the Project Database are health related. However, there were marked differences in the proportion of health initiatives for each country. The Uganda Project Database comprised of 52% of health initiatives. In the Bangladesh Project Database, 10 of the 45 initiatives were health-related. The differences between the countries are more marked in respect of education initiatives, however. Only 3% of initiatives in Uganda focused on education, while 16% of Bangladesh's project database were education projects.

Of the three countries that contributed most to the Project Database, the Philippines was the only country in which most initiatives were not health related. Those initiatives categorised as socio-economic made up 23% of the Project Database for the country, followed by education, which accounted for 17%. Health and agriculture both accounted for 10% of M4D initiatives identified. There may be many reasons for the relatively low number of health M4D initiatives in the Philippines, but it is interesting to note that life expectancy and per capita expenditure on health is higher than that of Uganda and Bangladesh.[63]

Mobile Penetration Rate: 55.24%
Population Covered by Mobile Signal: 95%

[63] In the Philippines, total health expenditure per capita was USD 223 in 2006 and its life expectancy at birth was 72 years in 2008. Bangladesh had total health expenditure per capita of USD 69 in 2006 and its life expectancy at birth was 66 years in 2008. Uganda had total health expenditure per capita of USD 143 in 2006 and a life expectancy at birth of 53 years in 2008.

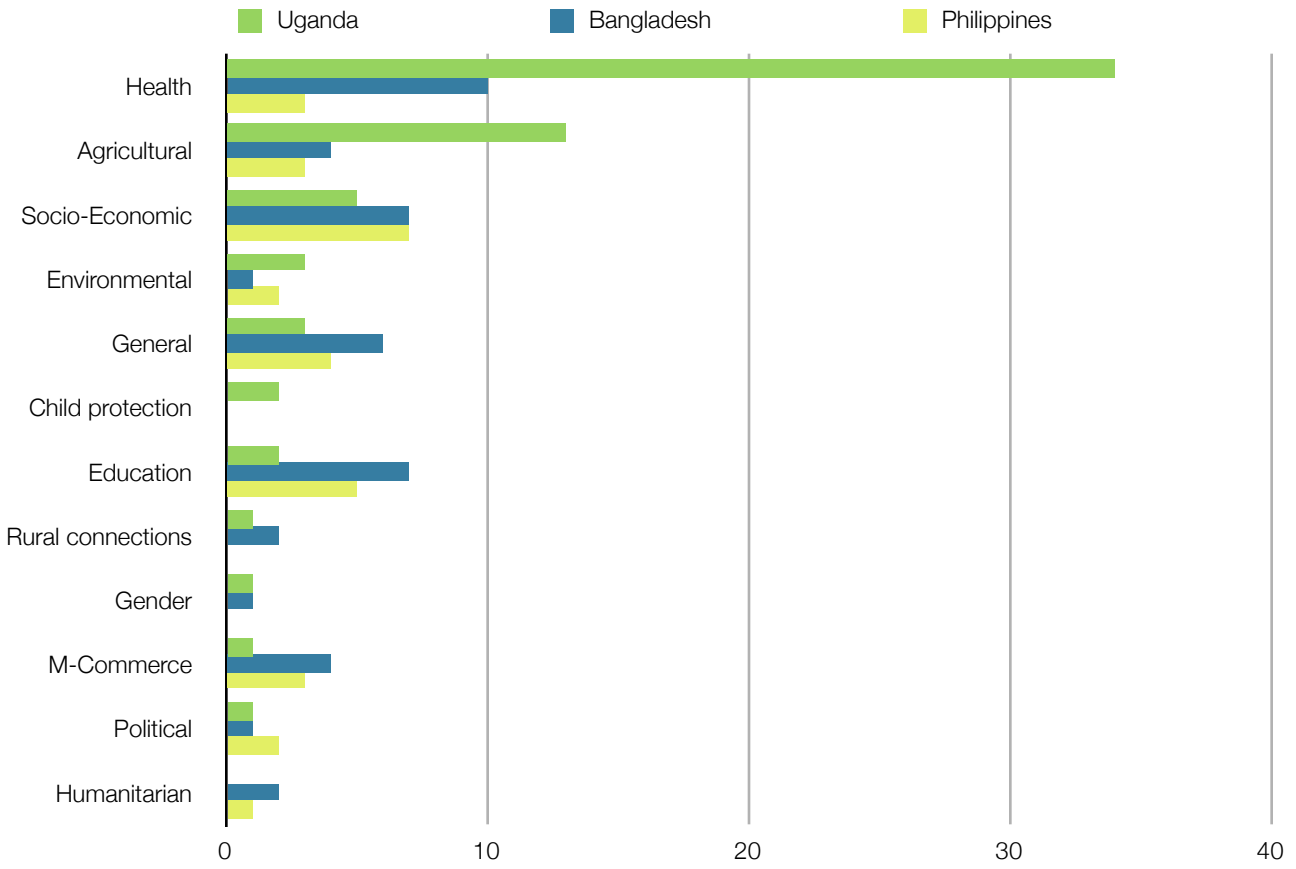

Figure 5-5 Live M4D Project Listings for Uganda, Bangladesh, Philippines

5.4. Primary Partners and Project Involvement

Successfully establishing M4D initiatives invariably requires a number of partners, with each partner playing a distinct and important role. The role of lead partner is extremely important; they usually have the vision and drive to draw the other partners together and bring ideas to fruition. When looking at the projects in the Project Database, development organisations, including bilateral and multilateral donors, international organisations, NGOs, INGOs and CBOs have been the lead partners in 49% of initiatives. Governments have led 13% of projects, academic institutions 17%, applications providers 10%, technology providers 16% and 6% were led by those categorised as others.

Of these projects, 6% are UNICEF driven (for in-depth analysis of UNICEFs M4D initiatives – see section 6. As explained later in the report, the traditionally strong relationship between UNICEF and government is still important in M4D initiatives. When looking at the projects which governmental departments have led or been a key

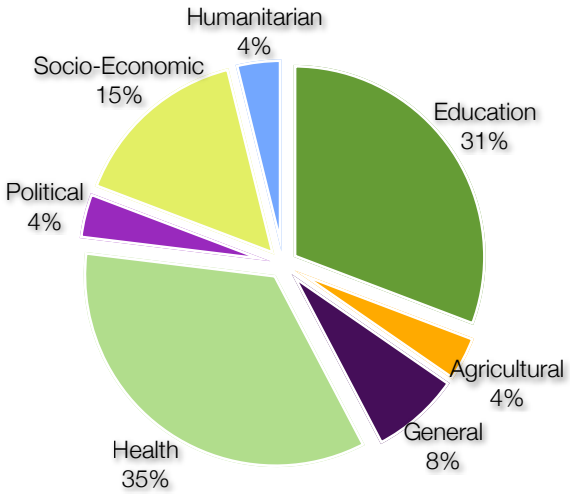

Figure 5-6 M4D Initiatives Distribution of

partner in, we can draw observations about their current and future focus areas. It also highlights the type of M4D projects governments are familiar, and possibly more comfortable, with in the future. Of those projects which government have played a major role in developing, 34% are focused on health and 31% on education. As there are few commercial services among these, these percentages perhaps reflect the priorities of governments.

The extent of a government's experience and its desire to use mobile phones for service delivery is obviously important when developing M4D initiatives; the more experience of using mobiles a government has, the easier it should be to implement a M4D initiative. Some governments are using mobiles for service delivery and an even larger number are considering ways in which they can benefit from mobiles' far reach.

The Philippines Department of Agriculture, for example, developed a service that gives farmers advice about fertiliser use via the mobile phone. In Rwanda, the Ministry of Health gave 8,720 community health advisers from five districts free mobile phones to enhance healthcare in rural areas. In Uganda, the Ministry of Health and partners have given 700 healthcare workers Personal Digital Assistants (PDAs) – essentially, high-end, multi-feature smartphones – as part of the Uganda Health Information Network (UHIN). The health worker will use the PDAs and mobile networks to enhance access to health care information and speed up decision makers' access to accurate public health data.

"We are definitely seeing countries move towards the use of mobiles to deliver services. I also think that we and other operators in Asia Pacific have been quite proactive. We recognise that there is a commercial angle to public services delivery that feeds our bottom line."

Vice President & Head of Strategy
Asia Axiata

Despite a growing number of examples, evidence of governments' use of mobiles for service delivery is mixed. Consultations with the M4D thought leaders indicate that many governments are thinking about using the mobile for service delivery. Yet there is a gap between intent and action. The consultations with mobile operators in 14 Case Study Countries and the private sector thought leaders suggest few governments have made active steps to use the mobile. There are regional differences however; operators in the more developed Asian markets are working with governments to create services but according to those consulted, few African and Latin American governments are taking active steps to use the mobile.

The difference in the level of mobile market development partly accounts for regional variations in governments' use of mobiles. In Asia, there are more examples of mobiles being used for service delivery, so convincing governments – who are often risk averse – that mobiles can make a positive difference to service delivery is easier. In Latin America and Africa, governments have fewer examples to follow. At the same time, many Asian operators are actively reaching out to governments and seeking to develop mobile services in collaboration with the government because their markets are becoming saturated. Few African operators are doing the same because penetration levels are relatively low and they are focused on gaining new subscribers. The situation may change in the near future when penetration levels and VAS usage increases.

Mobile operators are the lead partner in only 30 of the 192 initiatives in the Project Database, providing further evidence of the lack of development-focused services being provided by operators.

Most of the operator-driven initiatives are commercial services or focused on m-commerce. Health initiatives make up 20% of those developed and rolled-out by operators. Commercial services like Grameen Phone's Healthline, which lets Grameen Phone subscribers speak to doctors and have preliminary consultations.

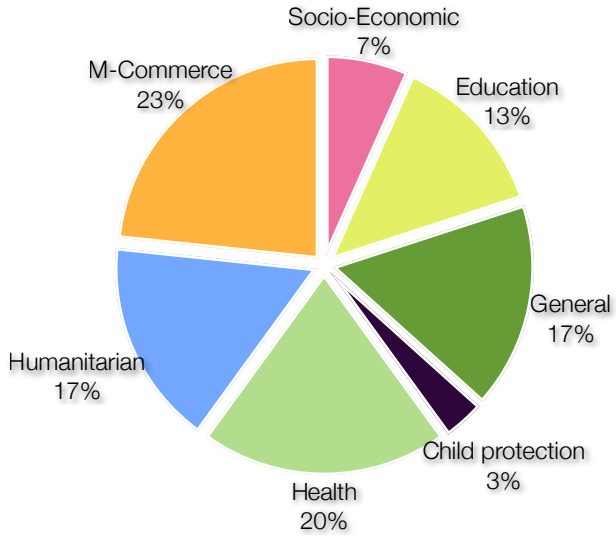

Figure 5-7 M4D Initiatives Distribution of Operator Involvement

5.5. Operators' Attitudes Towards M4D Services

Despite the current lack of development-focused services, mobile operators in all 14 Case Study Countries recognise the need to develop M4D services and are enthusiastic about doing so. Most felt the current choice of services was limited to infotainment in their respective markets and suggested there needed to be more diversity. There was great interest in development-focused services, though many also made it clear that there must be a clear business case for their organisations if they are to get involved in large-scale M4D initiatives.

Despite being confident there is a market for the right M4D services, there is acknowledgment by operators that much research and development must be done if commercially viable services are to be developed. Amongst other things, operators question what sort of services users, especially the most vulnerable, would demand. There also remain concerns about users' willingness and ability to pay. It is partly because of these concerns that many operators expressed a willingness to work with development organisations like UNICEF. They believe development organisations have a better understanding of user demand for M4D services and potential expenditure than they currently have; development organisations can reduce the risks involved in developing and launching commercial services that are development-focused.

"We need to make services as easy to use as possible and take into account peoples' willingness to pay and their need for developmental services"

Senior General Manager, Corporate Planning
International Services, VAS & Site Acquisition
Mobitel

The success of M-PESA has shown operators are willing to invest millions of dollars in services that have a developmental impact if they believe it will make them money. Interestingly, much of the risk – R&D costs – involved in this much heralded example of commercial M4D was borne by DFID through its Financial Deepening Challenge Fund.[64] As more development services in health and education prove profitable and thus sustainable, operators will take the initiative in developing such services.

[64] The Financial Deepening Challenge Fund provided incentives to the financial sector to try new ways of extending financial services to the poor. The grant funding provided helped to pilot projects with assured social impact but uncertain financial returns to test their commercial viability.

"There are no real services like this here. The focus has been on providing connectivity. However, I believe these [development focused] services have great potential."

Billing & Charging/VAS Director
KOREK Telecom

Development organisations that develop non-commercial M4D initiatives attempt to ensure programming objectives and the needs of beneficiaries are at the heart of the design process. Similarly, those operators interested in creating M4D services are keen to meet their primary objective, which is to make profits by creating commercial M4D services that may have an impact on development but are first and foremost popular and revenue generating. This may require a fundamental shift in thinking for many development organisations keen to engage with operators on M4D, but the results of consultations with mobile operators in the 14 Case Study Countries suggests it is necessary if sustainable M4D services are to be a reality.

5.6. Challenges to the Use and Development of Mobile Applications, Content and Services

Despite enthusiasm for developing M4D applications, content and services amongst operators in the Case Study Countries, obstacles to their development and use remain. Some were particular to one country, while others were more widespread, and mentioned in a number of consultations.

5.6.1. Lack of Innovation and Low Capacity of Content Producers

The lack of innovation and low capacity of content producers was the most cited challenge across the 14 countries. Operators in half the countries suggested this prevented the development of innovative mobile applications, content and services like those called for by the M4D community. Instead, local developers and content producers remain focused on supplying infotainment that serve non-essential needs and that do not require them to think outside the box.

Part of the problem appears to stem from the IT training provided in some countries. In Iraq, for example, operators felt that many of the IT graduates who could be mobile content producers lacked the necessary skills when graduating. In addition, foreign-based companies offering far more pay quickly recruited those graduates that were capable. This meant that Iraqi mobile content producers lacked capacity, which compelled some Iraqi operators to seek VAS from abroad.

5.6.2. Poor Levels of Rural Access

Poor levels of rural access prevented those in unserved and underserved rural areas using services. Those operators in Suriname, the Philippines and Iraq suggest that many potential users were not given the opportunity to use VAS because mobile networks did not provide coverage where they lived. Interestingly, many operators in other countries where poor rural access remains a problem did not cite poor levels of rural access as a major impediment. This may be due to ongoing efforts to connect rural communities in those countries and many operators' confidence about improving rural access in the short- to medium-term.

5.6.3. High Price of Mobile Handsets and Services

The high price of handsets and services was said to be a major challenge in Bangladesh, Philippines and Uganda. Operators felt the high price of handsets prevented the uptake of mobiles and therefore services, particularly for those at the bottom of the pyramid at whom development-focused services will target. Operators in Ghana and

Egypt did suggest the lack of M4D services and knowledge about how to price them was an issue and prevented operators developing the services. Many operators blamed high taxation for the persistence of high prices. In Bangladesh, for example, in addition to the 12% customs duty on mobile handsets, users pay an additional 15% value-added tax (VAT) which can make mobile handsets prohibitively expensive. The VAT is also applied to services, alongside other taxes, which amount to 35%.[65] Where the cost burden falls varies from country to country. Though some operators, including Robi in Bangladesh, subsidize services and the provision of handsets, such practices are not sustainable. In the long run, costs are largely borne by consumers, ultimately stifling penetration growth in many countries.

The challenge of pricing services is multifaceted, especially when pricing development-focused services. M4D services must be priced so the most vulnerable are not excluded from using them and the private sector is confident enough about its return on investment to invest in developing them. The need for this careful balancing act calls for pricing models to be built using the results of robust research evidence about users' willingness and ability to pay.

5.6.4. Poor Enabling Environments

Poor enabling environments, which have constrained effective competition and the provision of some services, have proved to be a major impediment to the use and development of more advanced services. Operators in Suriname and Zambia suggested poor regulation had undermined competition in their respective markets and led operators to focus solely on increasing subscriber numbers and market share, rather than providing a wider range of services. Ghanaian, Mongolian, Sri Lankan and Ugandan operators argued there was too much competition. They felt there were too many operators for their respective markets and this created a disincentive to invest in the development of VAS, especially more risky M4D VAS.

Poor enabling environments are not just about competition; poor regulation and legal enforcement are also a challenge. In Sri Lanka, ICT and financial regulators had not finalised the regulatory regime for mobile financial services and legal complexities remain to be solved. This has prevented mobile operators there from providing m-banking. In Kosovo, poor copyright enforcement prevented operators and developers producing innovative services. They felt there was little point in investing in the development of services if they could not protect their investment and ensure their content and services were not copied.

5.6.5. ICT Literacy and Illiteracy

Low levels of textual and technological literacy were highlighted as significant challenges in a few countries. Challenges posed by illiteracy were mentioned by a number of operators, particularly those Sub-Saharan African Case Study Countries such as Sierra Leone and Zambia. Low levels of ICT literacy was an issue in a few countries such as Sri Lanka and Egypt, where operators believe some users are unable to use services because they could not use some functions on their mobile phones. The popularity of infotainment services across all markets has been driven by ease of use; making M4D services easy to use will help drive uptake.

5.6.6. Lack of Local Content

Operators in Iraq, Suriname and Sri Lanka cited the lack of VAS in local content as a major challenge. In each country operators felt large sections of the population could not use services because they were not provided in

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[65] Katz, R.L., Flores-Roux, E., Mariscal, J. 2009. The Impact of Taxation on the Development of the Mobile Broadband Sector. [online]. London. GSMA. Available from: http://www.gsmamobilebroadband.com/upload/resources/files/15072010174953.pdf [Accessed 6th October 2010].

their local languages. In Suriname, for example, much of the little VAS provided is supplied by external providers who do not provide content in local languages. In Iraq, operators felt that much of the content being created by Iraqi providers was neither relevant to the lives of users nor particularly good, so they procured content from regional providers.

5.6.7. Surmounting Challenges

Despite many challenges, there is reason for optimism. An assessment of the challenges suggests most will be overcome in the short- to medium-term if trends identified in Section 4 of this report continue. Poor enabling environments, low levels of rural access and a lack of local content are challenges that will be surmounted by the ongoing liberalisation of markets and growth of effective competition, use of targeted policy and regulation, the ambitious rollout of mobile network infrastructure in rural areas and growth of mobile penetration. The challenge posed by the high price of handsets and services may also prove to be short-term if their falling prices over the last few years continue. The challenge of too much competition is likely to be overcome in the near future, as mobile markets consolidate. It is unlikely that markets such as Ghana, for example, a country with a population of 23 million, can support all six of its licensed mobile operators.

A number of challenges, however, are to likely persist beyond the short- to medium-term. Illiteracy is the most significant long-term issue. Efforts to provide universal education should help, but raising literacy levels significantly in many countries will require a long-term commitment. Low levels of ICT literacy may not be easy to overcome and will take time for people to gather knowledge and understand how to use mobiles to their full potential. Having said that, handset manufacturers are focused on providing phones that are easier to use and there is evidence of mobile operators making efforts to educate users about how to use SMS functionality.

A lack of innovation is likely to be a long-term challenge in some markets, such as Malawi, where little VAS has been provided to date. This lack of innovation will impede the development and use of M4D services. Although there is growing interest in M4D services in such markets, it may take some time, and a considerable shift in thinking by development organisations and operators, before they are widely available.

Table 5-1 Challenges to the Use and Development of VAS summarises our assessment of the challenges, the countries where they exist and whether the challenges will be short to medium-term or long-term.

Perceived Challenges	Countries Where Challenges Exist	Time Scale of Challenge
Poor enabling environment	Sri Lanka, Suriname, Zambia	Short – Medium Term
Lack of local content	Iraq, Sri Lank, Suriname	Short – Medium Term
Illiteracy	Sierra Leone, Zambia	Long Term
Poor rural access or network capacity	Iraq, Philippines, Suriname	Short – Medium Term
Too much competition undermines investment by operators	Ghana, Mongolia, Uganda	Short – Medium Term
Lack of development focused services and effective pricing for them	Ghana, Egypt	Medium – Long Term
Lack of innovation and low capacity of content producers	Ghana, Iraq, Philippines Sierra Leone, Sri Lanka, Uganda	Short to Medium
High cost of handsets	Bangladesh, Mongolia, Philippines, Uganda	Short – Medium Term

Perceived Challenges	Countries Where Challenges Exist	Time Scale of Challenge
High price of services	Bangladesh, Kosovo, Philippines, Uganda	Short – Medium Term
Low levels of ICT literacy	Egypt, Sri Lanka	Medium – Long Term
Copyright issues	Kosovo	Short – Medium Term

Table 5-1 Challenges to the Use and Development of Value-Added-Services

5.7. Capacity of the Mobile Development Communities

The development and successful scaling of M4D initiatives will require the local mobile development community to participate; they will be required to develop projects and maintain them by providing long-term technical support. Application developers and content producers in the 14 Case Study Countries may make up the pool of technical resources that will facilitate M4D projects. As explained later in this report, UNICEF's use of M4D is currently hindered by a lack of local programmers – see section 6.

In order to assess capacity, operators were asked to rate the capability of the mobile software development communities in each country where they worked. Highly mature mobile development communities were comprised of players that could conceptualise M4D initiatives and that possessed the technical capacity to see them through deployment. The results are varied, ranging from those that operators considered extremely mature and those that were felt to be very immature and lacking in capacity.

Operators in Egypt and the Philippines felt their mobile software development communities had excellent capacity, as they were able to conceptualise products and bring them to fruition. The Philippines is a highly developed market with a long-standing history of VAS production and usage. Those consulted believe its mobile development community is capable of innovation and able to create anything locally required. This is perhaps evidenced by the result of recent changes in the regulatory regime, which have caused a huge fall in the use of infotainment, such as ringtones. The Filipino mobile software development community have responded to the challenge by trying to create other innovative services, including a range of government services. Egypt has done much to develop the capacity of its mobile software development community. Its operators have held competitions to enthuse and stimulate the mobile development community and catalyse innovation. Its government has a Information Technology Industry Development Agency (ITIDA), which supports the growth and sustainability of a talent pool of

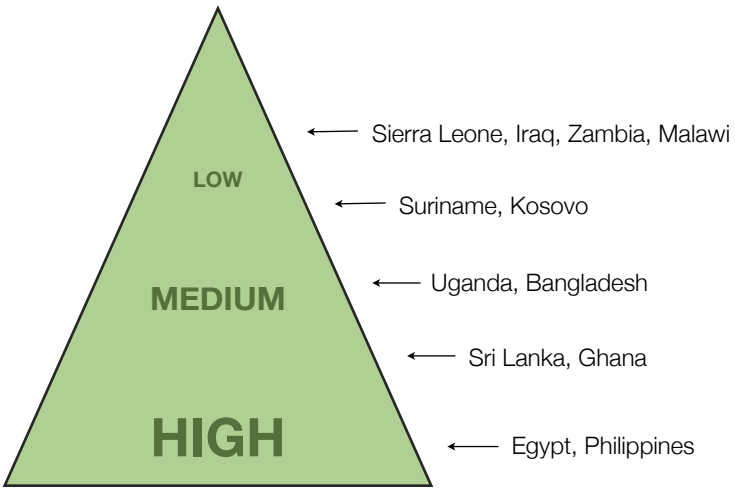

Figure 5-8 Mobile Software Communities' Capacity in Case Study Countries

mobile software developers and businesses in the mobile applications, content and services space.

Sri Lanka and Ghana's capacity was considered high. Both have long-standing and well established mobile development industries, comprised of many players. However, operators felt the players in their respective communities were unable to think outside the box and develop innovative products like M4D VAS. Little or no innovation was also given as a reason for the medium level capacity rating Bangladeshi and Ugandan operators attributed to their communities. Of course, part of the enthusiasm for researching and developing innovative products is linked to the financial incentives and perceived levels of demand. In markets where the developers are yet to see demand for M4D services take off and operators are still making money from infotainment, the desire to develop innovative services may be less likely.

The mobile development communities in Malawi, Iraq, Zambia, and Sierra Leone were felt to have low capacity. Operators in each country used outside providers for their VAS because the M4D community in their respective countries did not have the technical expertise. Operators in Kosovo and Suriname said their mobile development communities were in the low to medium category of expertise. Despite the ability to develop ringtones and basic services, they were not yet able to develop more sophisticated applications and content.

5.8. CSR Initiatives

The consultations provided evidence about the type of CSR activities undertaken by each operator and how operators' CSR departments engaged with external agencies. The sponsorship of sporting and cultural events; donations of equipment, including school books, mobiles and computers; and the provision of scholarships were the most common CSR activities. Most operators confirmed that providing donations and sponsorship are their preferred forms of engagement, perhaps proving that operators' CSR activities are also public relations and marketing activities – tangible, visible goods go much further in this respect.

Education is the most popular area of engagement for operators in the 14 Case Study Countries and their CSR support usually involves the renovation and construction of schools. Zain operators, for example, work with each country's respective ministry of education to identify schools and rebuild them as part of the company's Build Our Nation programme.

There are CSR activities that are only undertaken in a few of the countries, and they prove once again that context is king when it comes to the activities of mobile operators. For example, the support of victims of violence and natural disasters is a key CSR activity for operators in Iraq and Bangladesh, where such incidents are more frequent. In Egypt, Etisalat has partnered with Care International and a number of leading local NGOs to deliver Origin, a nationwide project designed to counter Egypt's water dilemma by delivering safe drinking water, purifying polluted or

contaminated water, providing hospitals with dialysis equipment and water treatment facilities, and undertaking water conservation initiatives.

Few CSR activities involved the use of operators' mobile networks and technical capacity - their key strengths. However, various operators, including Zain (various countries), Vodafone Ghana, Grameen Phone in Bangladesh, IPKO in Kosovo and all the Iraqi mobile operators, have helped development organisations collect funds by providing short codes and network capacity. Operators in some of the more developed Case Study Countries have gone a little further, using their networks and technical expertise to provide educational content. Globe Telecom's CSR activities are undertaken by the Ayala Foundation and it is developing educational content to Filipino users. In Sri Lanka, Dialog is providing educational content to more than 1000 schools across the country through its satellite network.

5.9. Operators' CSR Engagements

There are differences in the way operators engage with external organisations. Some put out formal calls for proposals and have structured, robust policies to formally evaluate potential partners and their proposals. Operators in more developed markets that employ more structured processes. Etisalat and Dialog, for example, have formal processes in which they assess the organisation, its proposal and objectives, as well as the impact of its previous activities.

"We have a very long and robust screening policy. We look at the projects – past and present – what the organisation has done and assess the impact/success of this project. We also talk to government agencies that have some interaction with the organisation."

Infotainment and Multimedia
Etisalat, Egypt

Yet other operators work in a less structured manner and are happy to review unsolicited proposals and allow the development organisations to drive the activity, as long as it suits their objectives. According to some of those operators, it has resulted in some projects being less successful. And they believe the unstructured way of developing CSR engagements is likely to change in future, as CSR departments become more experienced, more accountable and more circumspect about the engagements they get involved in.

"Our [CSR processes] are structured. For example, we have a dedicated environment team, an education team, and a humanitarian team to deal with the countless number of organisations that wish to collaborate with Dialog".

Head of Corporate Communication and CSR
Dialog, Sri Lanka

As explained later in this report, UNICEF M4D activities have often been initiated with the support of mobile operators' CSR departments. Yet amongst the M4D and private sector thought leaders consulted, there is a consensus that mobile operators' CSR departments are not the best divisions of the business to engage with when developing large-scale M4D initiatives; they are not linked to other business units, they have small budgets, little decision-making power and are slow to take action. Instead, development organisations seeking to develop large-scale M4D projects should seek to engage with commercial business units, which are in a better position to facilitate large-scale M4D initiatives.

This argument appears valid because some operators consulted in the 14 Case Study Countries confirmed their CSR budget and objectives were determined at group level and therefore, they had little flexibility and decision-

making power in the type of activities they could get involved in. This important for a growing M4D community that must better engage with mobile operators if it is to take M4D initiatives to scale and make them sustainable.

5.10. The M4D Community Working with Operators

The increasing penetration of mobile, evidence about their socio-economic impact, and the positive impact of M4D pilots, projects, programmes and services has led a growing number of players in the M4D space. The M4D community, therefore, is comprised of, but not limited to, development organisations, industry associations, bilateral and multilateral organisations, small NGOs, software developers and various private sector players, including operators. Their involvement in research, funding, and the development and establishment of M4D initiatives has resulted in a network of players that those on the outside may struggle to navigate. As we explain later, because of its reach and involvement in M4D, UNICEF could play an important convening role in the M4D space, drawing members of the community together around common goals and issues (see Section 7).

For those in the M4D community trying to develop group-level engagements with mobile operators, the GSMA Development Fund may prove to be the most important player in the M4D space. Established in 2006, the Fund undertakes the M4D work for the GSMA. The Fund works to ensure the mobile industry has a development impact while doing business as usual – they encourage operators to help improve the livelihoods of the world's most vulnerable while meeting commercial objectives.

Its core themes are connectivity, energy and m-services and its programmes include mHealth, mLearning, mAgriculture, mWomen, connecting the unconnected, mobile banking, and green power for the mobile. It is currently undertaking research on m-learning and m-health to assess whether education and health services delivered over the mobile could be a key revenue stream for operators and assist in key development challenges.[66] If this proves to be the case, it is likely that it will make m-learning and m-health key programmes and work with operators to develop commercial learning and health services. (For an extensive list, refer to Annex 4).

[66] GSMA Development Fund: http://www.gsmworld.com/our-work/mobile_planet/development_fund/index.htm

6. Framework for Engaging with Mobile Operators

This section of the report provides a framework that UNICEF can use to assist in the development of robust strategies, to engage with regional and global mobile operators.

6.1. Mobile Markets

The mapping exercise indicates that in most projects, relationships with operators have been established, at least initially, through CSR departments. This has been effective in securing "passive" contributions such as shortcodes, discounted tariffs and so on, i.e. products that the company provides as part of its routine business.

There is general consensus that in order to scale up M4D projects, and engage greater involvement of the mobile industry, there is a need to appeal beyond the CSR mandate of companies to their more commercial business units. The mobile thought leaders suggested that there is little point in approaching CSR departments, as they take far too long to act, have little decision-making power and too-small budgets.

Consultations with operators highlight a number of business strategies currently being pursued:

- Network extension and upgrading – moving towards universal coverage, and providing more bandwidth to accommodate data services
- Branding – establishing trust and differentiating from the competition
- Innovative services and applications – falling average revenue per user (ARPU) and increasing handset and network functionality have resulted in a focus on innovative services, content and applications
- Strategic alliances – regional operators are establishing relationships with each other, with handset manufacturers and content providers.

There are a number of consistencies in these approaches, which reflect two ways of developing business:

- Increase number of subscribers – network extension;
- Increase volume of traffic – through data and content services (upgrading networks, develop innovative services, and forge alliances with content providers).

Products from the M4D community, and the types of mobile services that UNICEF is pioneering, fall mostly into the second of these strategies. They are distinct from VAS currently available in that they are developed focused and are yet to demonstrate revenue-generating capability.

From an operator's point of view, the decision to pursue a strategy is based on a trade off between risk and return on investment:

- Now that demand for mobile voice communication is well established, the risk associated with extending a network is low, although the potential revenue streams from low-income and sparsely populated areas are low as well.

- Operators are investing in data services that lend themselves to high volume, low margin transactions (e.g. mobile money).
- Many are not currently investing in M4D opportunities where the risk is perceived as unacceptably high (or unknown), and the returns are low or unproven.

These options are, along with CSR. the most common means of engaging with the M4D community at present.

UNICEF (and the M4D community) is primarily interested in those market approaches that stand to benefit the poor and marginalised – these tend to be relatively low yield market segments. In order to engage operators, the M4D community must move their sphere of operation beyond CSR and into these other markets that will enable operators to develop businesses i.e. have development impact while doing business as usual.

6.2. Making M4D More Attractive

Operators will be more likely to engage with low-yield markets if risk can be reduced, and returns can be improved. The first step, however, is to even quantify the risks. A number of ways in which UNICEF can work to make M4D more attractive to operators are presented below.

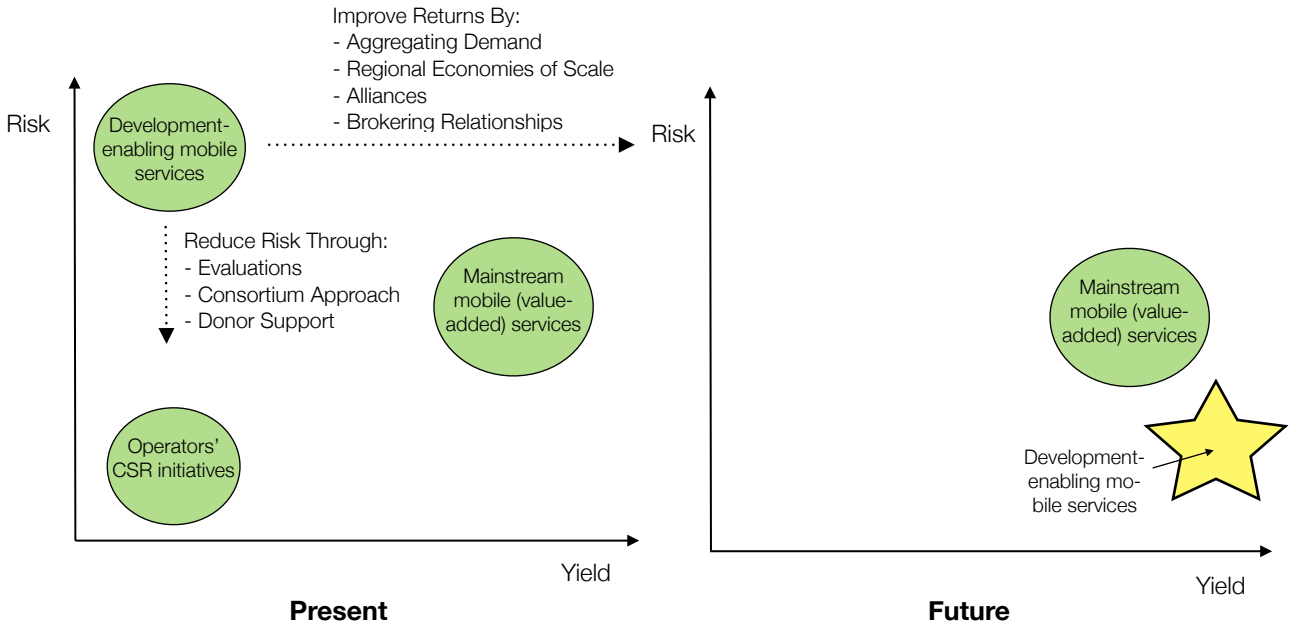

Figure 9-1 Framework for UNICEF to Work with Mobile Operators

Timeline	Consolidation	Forge Relationships	Deepen Relationship (Develop Business Case)
Reduce Risk	Evaluations – generate evidence to develop products effectively, and to demonstrate impact, demand, and revenue generating potential. Relationships within M4D community – create knowledge base of products, and what works. Planning – operators complain that NGOs tend not to have a clear plan of what they want to achieve (no business plan to scrutinise)	Identify who to work with – consortium approaches offer reduced exposure to companies e.g. GSMA; ITU have relationships with operators. Forge relationship with mobile operators that have largest scope (number of markets and subscribers)	Offer knowledge on BoP market segment. UNICEF have links and understanding; also ability to gather data of value to operators. Broker donor support to foster commercial interests in products. UNICEF can generate evidence to help build the business case for network extension to BoP.
Improve Returns		Identify companies to work with – multinational and regional operators will offer economies of scale. Consortia can also offer economies of scale across the industry e.g. GSMA	Aggregate demand – from across global operations (economies of scale). As an active member of the M4D community, UNICEF can broker relationships between operators and M4D content providers. Leverage UNICEF brand

Table 6-1 Stages of Engagement with Mobile Operators

6.3. Market Characteristics

Mobile markets differ between countries and these differences will have a bearing on the type of engagements UNICEF seeks and its approach to negotiating during M4D programme development; for example:

- Ownership – most markets boast operators that are owned (at least partly) by multinational companies, but in some countries, operators are locally owned, eliminating scope for regional approaches
- Economic conditions – mobile markets have a remarkable track record of profitability even in poor economies, yet in some countries, operators are struggling for financial viability
- Size – potential customer base varies with the size of population (and mobile penetration rates).

It is proposed that differences in market conditions will influence the extent to which the market strategies in Table 6-1 pursued e.g. a struggling operator with little access to investment capital will stick to low risk strategies.

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Annex 1
Regional Operators

The following table identifies the regional operators researched in the study and provides their countries of operations.

Operator	Countries of Operations	
Etisalat	Tanzania	Iran
	Benin	Saudi Arabia
	Burkina Faso	Sudan
	Central African Republic	Indonesia
	Gabon	Afghanistan
	Niger	India
	Nigeria	Pakistan
	Egypt	Sri Lanka
MTN	Afghanistan	Nigeria
	Botswana	Rwanda
	Cyprus (joint venture)	South Africa
	Cameroon	Swaziland
	Congo-Brazaville	Uganda
	Côte d'Ivoire	Zambia
	Ghana	Benin
	Guinea Bissau	Sudan
	Republic of Guinea	Syria
	Iran	Yemen
	Liberia	
Zain	Kenya	Republic of the Congo
	Madagascar	Gabon
	Malawi	Ghana
	Niger	Sierra Leone
	Nigeria	Bahrain
	Tanzania	Iraq
	Uganda	Jordan
	Zambia	Kuwait
	Burkina Faso	Lebanon
	Chad	Occupied Palestinian Territory
	Congo DRC	Saudi Arabia

Operator	Countries of Operations	
Orange	Botswana (partnership) Kenya (partnership) Madagascar (subsidiary) Cameroon (subsidiary) Central African Republic (subsidiary) Guinea (partnership) Côte d'Ivoire (partnership) Mali (subsidiary) Mauritius (partnership) Niger (subsidiary) Senegal (partnership) Egypt (partnership) Israel (subsidiary) Jordan (subsidiary) Tunisia (subsidiary) Romania (subsidiary)	Orange Caribbean (subsidiary) • Dominica • Dominican Republic • French Guiana • Guadeloupe • Martinique • Saint Kitts and Nevis Moldova (subsidiary) Armenia (subsidiary) Austria (subsidiary) Belgium (subsidiary) France (base) Luxembourg (subsidiary) Poland (subsidiary) Portugal (partnership) Slovakia (subsidiary) Switzerland (subsidiary) United Kingdom (subsidiary)
Vodacom	Lesotho Mozambique South Africa	Tanzania Congo DRC
Tigo/Millicom	Rwanda Tanzania Chad Congo DRC Ghana Mauritius Senegal	Bolivia Columbia Guatemala El Salvador Honduras Paraguay Lao PDR
Econet	Botswana Burundi Kenya	Lesotho Zimbabwe
Orascom	Burundi Namibia Algeria Egypt Tunisia Bangladesh	Pakistan North Korea Canada Zimbabwe Central African Republic

Operator	Countries of Operations	
Axiata	Iran Cambodia Indonesia Malaysia	Singapore Bangladesh India Sri Lanka Pakistan
Telefonica	Argentina Brazil Chile Colombia Dominican Republic Ecuador El salvador Guatemala Mexico Morocco Nicaragua Panama	Peru Puerto Rico Uruguay Venezuela Czech Republic Germany and Isle of Man Ireland Italy Slovakia Spain United Kingdom United States
Digicel	Anguilla Antigua and Barbuda Aruba Barbados Bermuda Bonaire Curaçao Dominica El Salvador French Guiana Grenada Guadeloupe Guatemala	Guyana Haiti Honduras Cayman Islands Jamaica Martinique Panama Saint Kitts and Nevis Saint Lucia Saint Vincent and the Grenadines Suriname Turks and Caicos Islands Trinidad and Tobago
Cable and Wireless	LIME(subsidiary of Cable and Wireless) Anguilla Antigua and Barbuda Barbados British Virgin Islands Cayman Islands Dominica	Jamaica Montserrat Saint Kitts and Nevis Saint Lucia Saint Vincent and the Grenadines Turks and Caicos Trinidad and Tobago (own 49% shares in TSTT)

Operator	Countries of Operations	
America Movil	Argentina Brazil Chile Colombia Dominican Republic El Salvador Ecuador Guatemala Honduras	Jamaica Mexico Nicaragua Paraguay Panama Peru Puerto Rico Uruguay United States
Hutchinson	Indonesia Thailand Vietnam India	Sri Lanka Hong Kong Macau
SingTel	Indonesia (holding shares of 35%) Philippines (holding shares of 45%) Singapore (base) Thailand (subsidiary) Bangladesh (holding shares of 45%)	India (partnership) Pakistan (holding shares of 30%) Australia (subsidiary) Sri Lanka (subsidiary)
Telenor (2010)	Malaysia (partnership) Thailand (partnership) Bangladesh (subsidiary) India (subsidiary) Pakistan (subsidiary) Montenegro (subsidiary) Serbia (subsidiary) Ukraine (subsidiary)	Russia (holding a third of VimpelCom, second largest mobile company in Russia) Denmark (subsidiary) Finland (subsidiary) Hungary (subsidiary) Sweden (holding different companies in Sweden)
Airtel	Bangladesh India Sri Lanka	
Deutsche Telecom	Croatia (subsidiary) United States(subsidiary) Germany (base) United Kingdom(partnership) Hungary(partnership)	The Netherlands(subsidiary) Czech Republic(subsidiary) Austria(subsidiary) Slovakia(partnership)

Operator	Countries of Operations	
Vodafone	Albania Australia Czech Republic Egypt Germany Ghana Greece Hungary India Ireland Italy	Malta Netherlands New Zealand Portugal Qatar Romania Spain Turkey United Kingdom
	Partner Market: Vodafone Group has entered into arrangements with network operators in countries where the Group does not hold an equity stake. Under the terms of these Partner Market Agreements, Vodafone and its partner operators co-operate in the marketing of global products and services with varying levels of brand association. This strategy enables Vodafone to implement services in new territories and to create additional value to their partners' customers and to Vodafone's traveling customers without the need for equity investment in these countries. Similar agreements also exist with a number of the Group's joint ventures, associated undertakings and investments (the affiliates)	
	Azerbaijan Belgium Bulgaria Channel Islands Croatia Cyprus Denmark Estonia Faroe Islands Finland France Iceland Latvia Lithuania Luxembourg Macedonia/FYROM Norway Serbia Slovenia Sweden Switzerland Armenia	Ukraine Russia Caribbean Chile Honduras Panama Afghanistan Bahrain Fiji Hong Kong Japan Kenya Libya Malaysia Singapore Sri Lanka Taiwan Thailand Turkmenistan UAE Uzbekistan

Operator	Countries of Operations	
Teliasonera	Sweden	Tajikistan
	Finland	Georgia
	Norway	Moldova
	Denmark	Nepal
	Lithuania	Cambodia
	Latvia	Associated Companies:
	Estonia	Latvia
	Spain	Russia
	Kazakhstan	Turkey
	Azerbaijan	Ukraine
	Uzbekistan	Belarus

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Annex 2
CSR by Regional Operator

Summary of Individual Operator Initiatives

The following briefly summarise the key themes in each regional operators CSR programmes. For each operator, an outline of their CSR vision is followed by any CSR work they have carried out in the spheres of health, education, child protection, the environment, and economic and social development.

Etisalat

CSR Focus

Etisalat aims to interact positively with society, particularly through community-focused activities to support the environment, education, health, and to provide support for the poor and those with special needs. Etisalat projects seek to bridge the digital divide through the development of ICT's and its uses at a community level.

CSR on Health

Health projects vary from country to country depending on local needs and are intended to address health issues from a cultural and local perspective. One of the most noteworthy projects Etisalat is engaged in is Etisalat Misr's involvement in the campaign "Water...Origin of Life", which helps provide uncomtaminated water to rural areas of Egypt.

Etisalat's Canar subsidiary supports the 'Roll Back Malaria' project, which aims to form partnerships that work together to improve malaria-control efforts at a country level by coordinating involvement. The overall goal is to reduce the suffering of malaria through gaining universal awareness of the issue of malaria control and by strengthening health systems.

CSR on Education

Etisalat Group subsidiaries are involved in many education projects and targets at all levels of society. One particular example is the involvement in the 'Reading for all' campaign in Egypt, which promotes the need for all Egyptians to be able to read and have access to learning materials.

In partnership with the Ministry of Education Etisalat helps provide high-speed internet to schools across United Arab Emirates. The objective of improved internet is to help reform education, develop communication between public and private sectors, improve efficiency and to help students broaden their studies.

Another area of education that Etisalat targets in their involvement of CSRs are special needs. Etisalat created scholarships for students with disabilities in Pakistan to improve involvement in society. Etisalat also aims at using technology to achieve this goal through provision of adapted telephony services to suit special needs requirements, which are then given out to individuals and social centres at discounted prices.

CSR on Child Protection

There were no examples of Etisalat being involved in projects directly aimed at child protection.

CSR on Environment

Etisalat aims to support environmental initiatives that are related to sustainability. Etisalat seeks to play a role in the conservation of natural resources. Etisalat UAE supports the National Mobile Phone Recycling Initiative, EnviroFone, which has thus far collected over 200,000 phones and recycled over 52 tons of electronic waste. Etisalat has now become the exclusive sponsor of this initiative. Etisalat is also a partner in the Saudi Scuba project aimed at preserving the countries coral reefs.

CSR on Economic and Social Wellbeing

Etisalat's Pakistan Telecommunication Company Limited (PTCL) is involved in Universal Service and makes concerted efforts to provide basic telephony and data services in remote rural areas. Thus, helping to develop rural areas to improve livelihoods.

Sports advocacy is a significant CSR initiative, with Etisalat's involvement in a number of sporting activities, both at a national and local level. Etisalat Misr was the official sponsor of the Egyptian Paralympics Committee. Etisalat's involvement in the Middle East Northern Africa Regional Games in Abu Dhabi, which was held as part of a national campaign to integrate people with special needs, shows commitment to using sport to advocate for social inclusion. Other sport sponsorships include Etisalat UAE Football League, the Abu Dhabi Golf Championship 2008, and the Dubai Horse Racing Carnival 2008. A Little League Soccer Tournament, involving 5000 students was held in the Kingdom of Saudi Arabia to promote and identify new talent, and the top twenty talented students were sent to Barcelona Football Academy to have coaching. In Afganistan, Etisalat helps set up sports tournaments, particularly in cricket, and also assists in opening sports venues throughout Afghanistan to create a platform for social interest and enjoyment.

MTN

CSR – Focus

MTN has established Foundations in over eleven operating countries to facilitate CSR initiatives, which focus on health, education, poverty alleviation and arts and culture. The Nigerian MTN Foundation appears to be the most active and provides a wealth of examples.

CSR on Health

The MTN Foundation in Nigeria has a strong focus on health. MTN Foundation (MTNF) Partners Against AIDS in the Community (MTNF PAAC). The aim of the initiative is to increase awareness and capacity building of the level of HIV/AIDS. This is achieved through integrative comprehensive HIV/AIDS responses formed into community structures.

MTNF Project C.L.E.A.N (Cleaning the Local Environment Around Nigeria) was created as an environmental health initiative to improve health and sanitation in urban areas MTNF 0703 Healing Project , formed in partnership with the Aart of Life Foundation, is another health initiative, to provide trauma and grief counselling services to bereaved members of society.

CSR on Education

MTNF has an interest in positively influencing all levels of education, approached through the improvement of educational systems, materials, and capacity building, particularly in the area of ICT. As a telecommunications company it believes in using its knowledge of the sector to improve education.

The following are examples of how MTN, Nigeria has tried to achieve these aims. MTNF Universities Connect Project was formed to provide digital access to information and infrastructure for Federal Universities in Nigeria, in order to improve the learning process. An initiative aimed at schools was the MTN Foundation SchoolsConnect project, which was designed to build knowledge and capacity of teachers and students in understanding ICT. Another school project, designed to infrastructure in primary schools, strengthen school management and the quality of education, was named the MTN Foundation/UNICEF Child Friendly School Initiative (CFSI). MTN also has a Learning Support Materials Initiative, that provides materials for those in education with special needs. The MTN Foundation is involved in the Muson Music Scholars Programme, which seeks to improve music education accessibility for talented youth from less privileged backgrounds.

CSR on Child Protection

The MTNF has formed a Children's Development Centre (CDC), which provides a "Disability & U Road Show and Seminar". The road show and seminar is designed to create public awareness on disabilities, assess partnerships with stakeholders to become involved and provide assistance. The team also meets families and those with disabilities, in order to give help and advice. MTNF C.A.R.E.S Project was also formed in the area of child protection, collaborating with Hope Worldwide Nigeria, to provide integrated care and support for orphans, including educational, nutritional and psychological provision. The aim is to improve wellbeing, protect, develop and socially include orphans and vulnerable children in Nigeria.

CSR on Environment

MTN SA seeks to ensure air and water pollution prevention. They also endeavour to improve land, forest, water, and wildlife management. The minimisation of waste, energy and water usage is an important objective on the agenda of MTN SA.

CSR on Economic and Social Wellbeing

MTN, Nigeria holds an objective to empower people economically, in order to provide a platform for a way out of poverty. An initiative based on this objective is the MTNF Rural Telephone Project (RTP), which is a Universal project aimed at using micro-finance to provide access to ICTs in order to empower women entrepreneurs. The project is in partnership with the Growing Business Foundation (GBF) and the International Finance Corporation (IFC). The women are referred to as "Phone Ladies" because they are enabled to provide telephone call services within their communities, through the provision of equipment, which they then repay the cost of over a six month period. The project has so far impacted around 1,500 rural women in about 20 states, particular impact has been observed within over 200 communities in Nigeria. MTN, Nigeria has further empowered women through the MTNF Lady Mechanics Initiative, which aims to benefit disadvantaged women by providing them with skills in the auto care industry. MTN, Nigeria have also provided positive economic and social impact through the MTNF Low Cost Housing Project, which offers decent, simple, affordable houses for low income earners.

Zain

CSR Focus

Zain aims to rehumanise business by fighting against corruption, education, and welfare of the poor. They desire to be a regional and global CSR entity by managing business in a socially and environmentally responsible way, and to make a positive impact on society through investment into communities. Much of its work is done through the Build Our Nation programme which has been mainstreamed through the organisation. At the moment, primary focus is on education.

CSR on Health

Zain places emphasis on health through a number of projects throughout the regions it operates in. To provide safe drinking water in order to prevent diseases and illness, Zain operations in Sierra Leone, Zambia, Kenya, Nigeria, Chad and Sudan supply water tanks, water towers and funded water boreholes. Zain also distributes materials and uses SMS campaigns to raise awareness of health issues, promote active participation in things such as immunization drives and obtain funding.

Zain has initiatives implemented across Africa to support or sponsor health initiatives and institutions. These include meningitis vaccines in Burkina Faso, kidney-related disease tests in DRC, guidance and counselling for HIV/AIDS in Nigeria, the distribution of National Insurance Certificates and the building of a hospital in Sudan, the refurbishment of a hospital in Kenya, the provision of medical equipment, supplies and emergency treatments donated in Kenya, Malawi, Congo B, Niger, DRC, Zambia, Gabon and Sudan, and hygiene and disease awareness campaigns carried out in other African countries.

Zain in Iraq established two mobile medical outpatient clinics offering free medical services and paid to send some critically ill patients overseas for treatment. Zain Iraq also supports the AMAR Health Program, which deals with 10,000 patients in Iraq on a monthly basis. Zain in Jordan has free pediatric mobile clinic to service remote areas, launched in 2002, it creates free health access for children under fifteen living in areas where there are not health facilities nearby.

CSR on Education

Zain's CSR involvement in education spans its operations in Africa and the Middle East and across all levels of education. The projects aim to improve learning, equipment available to children, building facilities, and to build skills and leadership.

Zain funds the "Build Our Nation" programme, which aims to improve the education of primary school pupils, in order to help achieve the Millenium Development Goals. Zain was involved in building and renovating schools in Chad, DRC, Sierra Leone, Niger, Kenya, Congo B and Tanzania. In Kenya, Zain commissioned a training workshop for the City Primary School for Autistic and Mentally Handicapped Children. The workshop was set up to train pupils between the ages of three and seventeen. Zain has also donated school supplies and equipment.

A televised quiz show, called Zain Africa Challenge, was produced to give university students across the continent the opportunity to win grants equal to the amount they won on the show.

The Future University Network (F.U.N), started in Jordan in 2005, is a youth development entity of university students who are able to gain professional skills through teamwork, collaboration, training and practical field work, all under

the oversea and guidance of Zain. The aim is to enhance entrepreneurial and leadership skills, including part-owning a company, providing logistics for Zain events, and being exposed to a corporate environment by spending time in the Zain offices. The initiative has been made international and adopted by some operations in Africa.

Zain was engaged in a Schoolbag Distribution Project in Bahrain and Lebanon, which equipped students with schoolbag supplies. Zain adopted ten public schools in underprivileged areas around Jordan as part of the sponsorship of the "Madrasati'' initiative. In adition to setting up a Mobile Maintenance Centre to provide free training to students on how to use mobile devices and equipment to create job opportunities for high school graduates, they have also set up a Mobile Telecommunications Lab at Jordan University of Science and Technology (JUST). Further Zain have established the Zain Education Fund in Jordan, which allows them to offer 44 scholarships to talented underprivileged and physically challanged students

Zain in Sudan provided southern states with educational facilities and equipment, in order to improve the education. Zain, Kuwait formed a collaboration with CISCO and Kuwait University to train over 90 instructors from schools, as part of the “Educate the Nation” initiative in Kuwait. The instructors the next year were then able to train 600 students, in order to address the IT skill-gap

Initiatives by Zain in the Kingdom of Saudi Arabia include activities aimed at the university level, including new Ideas for 'A wonderful world', which is a business competition for King Abdulaziz University students, to generate new telecom ideas to hopefully become business projects. They also produced Mobile Learning Solutions, where students and staff at King Abdulaziz university can access university services through mobiles. Zain, Saudi Arabia has future plans to cooperate in research of the telecom sector and offer internship programmes to students at King Saud University.

CSR on Child Protection

Although Zain’s work in education is extensive, there are no specific examples of Zain being involved in CSR initiatives directly aimed at child protection.

CSR on Environment

Zain has promoted environmental issues through advertising. Zain have a strong environmental management to reduce energy consumption and waste, develop alternative energy sources and implement recycling programmes. They have introduced a green power generating system to reduce Zain's carbon footprint.

CSR on Economic and Social Wellbeing

Zain robust solutions for improving Economic and Social Wellbeing by promoting sustainability models developed to encourage self-sustenance and alleviate poverty. Zain was part of a partnership to provide mobile communications and internet connectivity to the Columbia University's Earth Institute Millennium Villages' Project, with an end-to-end telecommunication strategy. This improves access to education, health, small business development and agriculture.

Further partnerships with local authorities are being made by all its operations to establish connections in rural communities and provide sim cards to improve emergency and healthcare services. A partnership with Ericsson and the GSMA to extend mobile coverage across Lake Victoria, in 2007, fueled economic development for those living in the area and saved lives of fishermen involved in accidents.

Orange

CSR Focus

Orange has a strategy that involves three top priorities; Include, which promotes access by combating the exclusion of geographical (isolated zones), economic (low-income populations) or physical (age, disabilities) factors, and fostering social solidarity with local communities; Preserve , which promotes the protection of the environment; and Care , which insures services delivered improve the lives of people.

European projects that have been implemented include the provision of hearing impairment aids in public facilities in Spain, programmes to facilitate access to education for underprivileged children in Romania, "A World to Share" exhibition, for cultural inclusion in Poland, and varying charity support.

CSR on Health

Orange is involved in a variety of health initiatives, as partnerships and the provision of direct support. A particular emphasis is to provide support for those with disabilities.

Orange has initiated E-Health with the launch of a Health Monitor, which monitors those with chronic diseases. The programme is currently only in Spain but it is viewed as a project in progress, with potential to introduce in other operating countries.

Orange is engaged in projects to support the autistic population through improved facilities, training, research and the provision of holidays. They also support the visually and hearing impaired through access to arts, independence aids, and facilities at cultural venues.

In Guinea, Orange works with the Helen Keller International (NGO) on a campaign to distribute vitamin A to 1.5 million children.

CSR on Education

Orange has an emphasis on education, particularly the advancement of social and professional autonomy by improving literacy and promoting education for girls. Orange has eighty projects in Mali, Senegal, Cote d'Ivoire, Niger, Central African Republic, Madagascar, Egypt, China and Vietnam, which promote literacy through community support, resources, training and study programmes.

Orange Foundations in Senegal, Mali, and Côte d'Ivoire conduct local projects with an emphasis on education. In Mali the Orange Foundation signed a partnership in 2008 with UNICEF and the Ministry of Education to construct 114 classrooms, with Orange financing 36 classrooms and 12 warehouse offices, thus improving access to education. In Niger, Orange has partnered with the NGO "Aid and Action" to invest in the "Girls In School" project , which contributes to the education of 1500 primary school pupils, 50% of them being girls, in 15 rural schools. The Orange Foundation in Jordan implements philanthropic initiatives, with emphasis on education. Orange promotes literacy and education of girls in Egypt, through community support, training and study programmes.

CSR on Child Protection

Orange has schemes in place to protect children from improper uses of the internet. These involve the provision of software that allows parent to prevent children using in appropriate websites.

CSR on Environment

Orange has introduced projects focussed on energy efficiency and environmental sustainability. These involve erecting mobile stations powered by solar energy, improved waste management, and the have in consideration of visual and auditory impacts of Orange operations. Orange has provided a methodology guide, which is being piloted in Madagascar, to encourage the establishment of environmental management systems.

Orange conducted "Together we can save the environment", an employee awareness project for green behaviour in Jordan, in conjunction with the international "Clean Up the World" initiative.

CSR on Economic and Social Wellbeing

A key objective in Orange's CSR strategy is to fight against the digital divide. Therefore, they have introduced the development of tariff packages adapted to low income populations, called "Transfer Pays", launched in 2008 in Madagascar and Senegal. The LION project was also introduced to provide Madagascar with secure international connectivity at lower cost. In Côte d'Ivoire, in partnership with BNP Paribas, the first secure payment money transfer service via mobile devices in Western Africa was launched, called "Orange Money".

Orange is involved in the ACE project (Africa Coast to Europe), which is the process of the construction of an undersea fibre optic cable to allow more than 20 countries in Western Africa to have the ability to connect to the internet.

Orange also feels culture is an important factor in society and therefore encourages collective music as a means of communication through the eighty-nine projects and the promotion of events and activities.

Vodacom

CSR Focus

Vodacom is committed to aiding the development of communities in which they operate. Education and Healthcare are Vodacom's main areas of focus for its established Vodacom foundations, with emphasis based on vulnerable children, youth, the empowerment of women and the disabled.

CSR on Health

Vodacom puts financial investment into the NGO Cell-Life organisation, seeking to develop technology-based solutions to manage HIV/AIDS. One project of interest is the 'Cellphone for HIV', providing those affected by HIV a platform for information and communication.

CSR on Education

Vodacom has future commitments to provide community-based ICT resource centres to assist schools through e-learning. Two centres are set to be established this year with more to follow.

CSR on Child Protection

There were no specification examples of Vodacom being involved in CSR initiatives aimed at child protection.

CSR on Environment

Environmental initiatives funding by Vodacom are assessed on a case-by-case. Vodacom is committed to reducing electronic waste, energy and water usage.

CSR on Economic and Social Wellbeing

Vodacom employees partake in employee volunteer projects, contributing their time and skills, books, clothing, blankets, and other needed items. Sport advocacy is important to Vodacom, with support to South African rugby, golf and soccer stars. Sporting events are often used to raise money for disadvantaged groups and other community involvement initiatives.

Tigo/Millicom

CSR Focus

Tigo/Millicon identifies six main issues, affecting business and society and has structured its CSR to face them. These are; Radio Frequency Fields, Child labour, Electronic Waste, Energy and Climate Change, Responsible Use of Mobile Phones, and Visual Pollution. Their main focus is on education with the theme 'Access today's world through education' as a basis for their initiatives.

CSR on Health

Tigo/Millicom supports health promotion in countries where diseases are affecting so many lives. An example of this is in Senegal, where they run "Triple Sensibilization". A caravan commutes between remote regions to educate the local people on health issues and makes donations. Tigo/Millicom also provides young mothers in health centres and maternity wards with information and materials on health and food supply.

CSR on Education

Tigo/Millicom supports education and initiatives for the young. They sponsor the Philippson Chair for Sustainable Human Development and provide a temporary working position to a final year engineering student.

CSR on Child Protection

Tigo/Millicom aims to specifically tackle child labour through education.

CSR on Environment

Tigo/Millicom participate in the Carbon Disclosure Project (CDP) to help reduce their carbon dioxide releases.

CSR on Economic and Social Wellbeing

There was no specification of Tigo/Millicom being involved in CSRs aimed at economic and social wellbeing.

Econet

CSR Focus

According to its CSR report, Econet views success not just through financial means but also by the positive transformation of communities. Econet aims to go beyond Corporate Social Responsibility to social innovation with a commitment to Christian values.

CSR on Health

Econet, Zimbabwe set up the National Healthcare Trust Zimbabwe (NHTZ), which was established to focus their intervention in health care by providing a proactive and sustained strategy in the Zimbabwean health sector. Econet

has an HIV/AIDS policy to aid the wellbeing of staff and their immediate families by providing anti-retroviral drugs. They also introduced a 'Live 2 Love' programme aimed at encouraging open dialogue among staff to help remove stigmas and increase information flow.

CSR on Education

Econet established the Joshua Nkomo Scholarship Fund, a pan-African scholarship fund, which provides funding for gifted students in Zimbabwe at secondary and university level.

CSR on Child Protection

Econet formed the Capernaum Trust, working with orphaned, economically disadvantaged children. The Trust aims to transform lives through scholarships, food packs, and empowerment with life skills training. Their contribution is through more than just provisions but with a planned programme to restore self-esteem and help create leaders with vision. Since its establishment in 1996 the Trust has helped over 26,000 orphans in Zimbabwe.

CSR on Environment

Econet has recently produced an Environmental and Waste Management policy, with the view that protecting the environment in more than a responsibility but a business necessity.

CSR on Economic and Social Wellbeing

Econet has established a Christian Community Partnership Trust with other Christian businesses, in support of evangelical work.

Econet sponsors the annual Harare Athletic Club (HAC) Twenty Miler Road Race, held every December to raise funds for charity. Econet also supports a number of sporting activities, including football, cricket and athletics.

Telefonica

CSR Focus

Telefonica believes it is a driving force for economic, technological, and social development in the countries it operates in. Fundacion Telefonica is the foundation for the company's social initiatives, aiming to improve the standard of education and the promotion of equal opportunities.

CSR on Health

Telefonica has developed a tele-assistance platform that provides remote care for dependent people. A sign language tele-interpreting service was set up by Telefonica through collaboration and they also created mediation centres for the deaf in Argentina, Brazil and Columbia.

CSR on Education

Telefonica established the EducaRed programme, which aims to improve education standards through new technologies, with the development of on-site educational activities, forums, debates, and training in technological skills.

Pronino is a programme supported by Telefonica, which provided schooling for 107,602 children in Latin America and uses technological tools to improve the quality of education. Solidarity Holidays and Friend Schools enable

schools to share experiences over the internet. Further plans are in place to benefit more children through socio-educational initiatives.

Employee volunteers dedicate support for these projects in the form of over 5000 hours a year.

Telefonica encourages debate and awareness, in order to create knowledge about the Information Society and to study its social impact with analyses, debates and publications.

CSR on Child Protection

The programme Pronino's goal is to contribute to children's schooling specifically to protect children from child labour.

CSR on Environment

Telefonica are committed to reducing electricity consumption in its networks, to develop services to improve energy efficiency and have set up a 'Green IT' working team to implement this through innovation.

CSR on Economic and Social Wellbeing

Telefonica seeks to invest into bridging the digital divide through its initiatives aimed at improving mobile and telecommunication coverage in rural areas, and by donating to the Universalisation funds in a number of Latin American countries. The innovation of products and services are seeking to provide more accessibility to the less privileged.

Digicel

CSR Focus

Digicel has an established Foundation to help build communities in Jamaica. Digicel has an objective to empower communities through provision of assistance, so that beneficiaries can become self-reliant. Digicel achieve this through improved education, skills training, sports and other social programmes.

CSR on Health

Digicel is involved in providing improved services for those with disabilities. For example, it donated a new eight-seater bus in 2007 for the Jamaica Society for the Blind, along with the provision of special tape recorders for the blind, talking calculators, braillers and white canes. Digicel also helped enhance the facilities for children with disabilities at Widow's Mite, a children's home. They constructed and equipped the physiotherapy room, which is designed to develop disabled children's movement.

CSR on Education

Digicel has a number of initiatives as part of their CSRs on education that involve improving educational facilities and targeting improved literacy in Jamaica. The Digicel Foundation provided the construction of the school and school equipment for two Basic Schools, which help children get into primary schools. They also teamed up with Barita Education Foundation to provide an early childhood education, in order to prepare the children for primary school.

Digicel has completed some projects involved in improving educational facilities, these include the refurbishment of a high school's computer lab, and the provision of a new library, audi-visual block for a Kingston primary school, and the donation of funds to a number of schools for resource rooms, auditoriums and libraries. Digicel also

donated funds to facilitate the construction of the UWI Lions Resource Centre for Students with Disabilities, which provides resources to enhance the learning experience for students with special needs.

The Digicel Foundation aims to improve learning through its CSR activities. Therefore they have helped finance a literacy programme at a Kingston primary school, which has helped students improve their reading levels, and has kick-started other similar interventions island-wide. Another programme the Digicel Foundation has contributed to is the Enrichment Centres programme, in order to increase literacy among students in primary and junior high schools across Jamaica. The Foundation will also equip the centres with computers, software, interactive boards and projectors.

Digicel has also established the Digicel Foundation Chair in Telecommunications Policy and Management (TPM) at the University of the West Indies. The aim of this initiative is to build capacity in the telecoms sector and improve policy research and training in the Caribbean region.

CSR on Child Protection

The organisation works with various childrens home as described above. Digicel also contributed along with other sponsors, to providing a Christmas event for children from children homes and places of safety, a day where the children could interact with a wider community and experience action-packed fun.

CSR on Environment

There were no examples of Digicel being involved in CSR programmes aimed at the environment.

CSR on Economic and Social Wellbeing

The Digicel Foundation use sports as a way to promote social change. By the provision of better sports infrastructure Digicel aims to improve inter-community relations, hope and self-help among citizens. The Foundation has helped build or refurbish a number of sporting facilities for a variety of local groups of people and clubs.

Digicel have given back to the community through the refurbishment of rooms and bathrooms at The William Chamberlain Men's Hostel, in order to accommodate more visitors. The objective is in "Giving Hope to the Homeless" by providing accommodation and helping to enable those living in difficulties with the provision of jobs.

Digicel has also given to the community in times of crisis through the restoration funding for schools, libraries and the Meteorological Service stations after hurricane damages.

Cable and Wireless

Cable and Wireless is focused on improving their environmental performance and enhancing their community involvement in the communities, in terms of both economic and social development. As members of the UN Global Compact, Cable and Wireless uphold principles across the fields of human rights, labour, environmental, and anti-corruption.

CSR on Health

Cable and Wireless made a contribution of specialised telemedical equipment to the Chicho Fabrega Hospital in Panama. This equipment enables the transfer of medical information from areas remote from the hospital, in order to improve heath access for those living further from the facilities.

CSR on Child Protection

Cable and Wireless have formed a “surf the web safely" campaign in Panama, which is designed for children and parents to ensure internet security.

CSR on Environment

The company is also committed to a number of environmental schemes to improve the impact on the environment. These include seeking alternative energy resources, improving energy efficiency, recycling, and reducing travel, waste and carbon footprint.

CSR on Economic and Social Wellbeing

Cable and Wireless have donated to a number of charities, including international charities such as World Vision.

Orascom Telecom Holding (OTH)

CSR Focus

Orascom Telecom Holding takes a partnership and united approach to corporate social responisbility and has emphasis on health and education.

CSR on Health

Orascom has a strong emphasis on health in their CSR Strategy, particularly in tackling issues surrounding stigmatised diseases.

Orascom formed a collaboration with Mobilink in a donation of $200,000 to help eradication of polio. It was also involved in a Hepatitis B campaign, comprised of a series of campaigns to mobilise youth to adopt preventative behaviours and get vaccinated against Hepatitis B. The raising of awareness and education on preventative measures were the basis for the campaign, in order to eliminate a stigma attached to the disease and to enable sufferers to access good treatment and support. Campaign highlights included University campaigns, World Hepatitis day and a Summer Awareness Programme.

Orascom has formed partnerships with the public and private sector to provide cornea transplantation surgical operations for needy children in Egypt, in support of the Vision 2020. Orascom also had involvement in an HIV/AIDS campaign in support of a team touring the world on bicycle as an advocacy campaign on HIV/AIDS. The objective was to raise awareness on a larger scale, particularly in rural or remote areas, through messages, campaign lectures and programmes, dissemination of information, increased media coverage, the promotion of discussion and the enabling of communication with those affected, the public and healthcare professionals.

CSR on Education

Orascom has a scholarship programme, where they offered six scholarships to Eqyptians in 2008/09 to study a Masters programme in the areas of Management, Business Administration, International Trade, Economics, or Banking and Finance at the University of Glasgow. The aim is for students to develop knowledge and then utilise this knowledge on returning to Egypt, in order to benefit the country and its economy.

CSR on Child Protection

Orascom tackles human trafficking through working with Suzanne Mubarak Women's International Peace Movement (SMWIPM). They tackled human trafficking by sponsoring a Public Service Announcement to raise awareness of the issue, resulting in a film on the topic that received wide recognition. The Chairman also took part in a panel in Zurich to discuss the form of slavery and the role in business in combating it. The campaign was seen by around 8,231,000 people involved in the evaluation survey.

CSR on Environment

There was no specification of Orascom being involved in CSRs aimed at the environment

CSR on Economic and Social Wellbeing

There was no specific mention of Orascom being involved in CSRs aimed at economic and social wellbeing, although all initiatives are supposed to feed into this.

Bharti Airtel

CSR Focus

Airtel aims to transcend business to initiate transformational changes in the socio-economic landscape. They try to align their processes and goals in order to create a social impact, and socio-economic goals. The companies areas of focus are education, training, health and the environment. Most Corporate Social Responsibility initiatives are activated through the Bharti Foundation. With an employee philanthropy programme called ACT, in which employees donate time and money.

CSR on Health

Airtel believes in using mobile telephony to empower users to overcome difficult situations. An example of implementing this belief is the “Airtel Cares for Everyone" (ACE) Project, which uses their innovative knowledge to develop an initiative that connects blood banks with blood donors and users. The initiative enables the provision of information on the availability of blood and the stock of tested blood components from Jeevan Blood Bank, which can be accessed in real time minutes, 24 hours a day . This is in line with an ongoing relationship with the Jeevan blood bank, during which free numbers have been provided for the communication of donors and patients with the blood bank. Another similar virtual blood bank has further been launched by Airtel in India.

Airtel understands the importance of raising awareness about different diseases and their preventative measures among employees and therefore has implemented schemes in which to promote these issues.

Airtel also believes in the promotion of sport and healthy living, which they implement through their Airtel Delhi Half Marathon and other internal sporting events.

CSR on Education

Education is a focal point of Airtel's philanthropic activities, particularly in rural and remote areas struggling with poor infrastructure. The educational projects Airtel has implemented are in India.

Bharti established the Satya Bharti School Program (SBS) to provide high-quality primary education to poor and under-privileged children, particularly for girls. The Foundation oversees the management process, from constuction

to the education given to the children. The curriculum is designed to promote education as an empowerment tool for the children. Community inclusion and participation is ensured through contributions of land, meals, materials and equipment for those involved. Airtel have the Satya Bharti Senior Secondary School Program currently in progess, involving the launch of a secondary school for children advancing from a cluster of primary schools, in order to provide vocational training to help the children attain a job after education.

Bharti has a scheme titled "Support Talent to Bloom". This objective encompasses a number of Airtel's educational activities. The Bharti Scholarships and Mentorship Program is a part of this umbrella term, with the provision of finance for bright students to access higher education in management, engineering and agriculture. The programme has so far managed to support of 224 talented scholars to reach their potential. The Bharti Udayan Shalini Fellowship Program supports 40 underprivileged girls to pursue higher education and vocational training courses. Workshops are provided on occasion for topics on careers counseling, personality development, peer handholding and mentoring, from civil society individuals. Through this programme, Airtel helps support girls who may not have had the opportunities to use their talents, empowering them to change their lives. A substantial contribution for the Dr. Manmohan Singh Undergraduate Scholarship Program at the University of Cambridge also provides talented students with the opportunity to achieve.

Airtel has implemented activities in "Building Centres of Excellence". The Bharti School of Telecommunication Technology and Management, IIT, Delhi is a part of this initiative. The school provides education and training opportunities to academically bright students, with the objective to help produce leaders and entrepreneurs. The Bharti Centre for Communication in IIT, Mumbai was established for the advancement of research in communication theory and systems. The Bharti Institute of Public Policy is also to be established, at the Indian School of Business, in order to promote research in Public Policy. Other initiatives include the creation of 26 Computer Centres, and 104 Library and Activity Centres, to provide access for children in rural areas.

CSR on Child Protection

Airtel employees have undertaken a variety of initiatives to help children from deprived sections of society. On Children's Day, they visited schools with gifts, and instigated games, singing and painting competitions. Childrens' paintings were then auctioned so that the proceeds could go towards SOS Children's Village. Employees visited orphanages in different areas and further organised "Gift A Smile", which was an initiative for visually challenged children. The employee volunteers visited the National Association for the Blind (NAB) where activities were arranged for the children, which coordinated with the schools values of inspiring the children to have a positive attitude and being able to fully understand their disability.

Telemedia North has adopted an NGO Prayas, who seek to help neglected, disadvantaged and deprived children, youth, and women from underprivileged communities, such as slums and rural areas in a variety of regions.

CSR on Environment

With a theme of refuse, reduce, reuse and recycle, Airtel seeks to conserve energy by sharing infrastructure , reducing travel, implementing waste water recycling, providing green shelters, energy using efficient lighting, recycling discarded oil, using energy-efficient equipment and the exploration of alternate energy sources. Airtel have also put in an application for carbon credits, and established energy councils and been involved in The World Environment day.

CSR on Economic and Social Wellbeing

Airtel seeks to bring about rural empowerment through telecommunications connections and projects. The E-Gram project, an e-governance initiative that impacted rural Gujarat so that routine official work could be done locally, thus preventing long travel, had rural empowerment as its objective. As does the project with IFFCO Kisan Sanchar Limited (IKSL), designed to impact agricultural productivity through improved access to information on weather forecasts, commodity rates and farming techniques. Affordable handsets are provided for farmers to access this information.

Disaster relief is an important aspect to Airtel's CSR Strategy with a response of financial donations and the provision of materials in the aftermath of flooding in many regions. Airtel has joined Massachusetts Institute of Technology (MIT) to develop an early warning system to predict flooding 15 days in advance. Airtel provided the water level data and status of embankments to MIT in order to aid in their work.

Airtel has also introduced cultural initiatives, such as the association with the Konark Dance & Music Festival and Kameswari Dance Festival and Habba.

Axiata

CSR Focus

Axiata is committed to advancing communities towards sustainable development through the use of technology. Axiata wishes to balance economic growth with environmental sustainability and social cohesion. Areas of focus include bridging the digital divide, education and the environment.

CSR on Health

Axiata's health initiatives comprises of the collaboration with the National Blood Transfusion Service (NBTS)in Sri Lanka to provide "SMS Blood". The project is a SMS-based system to help the Sri Lankan public in emergencies through the facilitation of donors to the blood supply system. Airtel also supports NGOs involved in healthcare in Pakistan.

CSR on Education

Axiata has a number of educational projects in Indonesia focussed on public education and ICT instruction. Indonesia XL has established an integrated scheme to provide computing facilities and an internet connection for around 60 educational institutes and schools. In partnership with other investors Axiata provides training for students to correctly use the internet, and for teachers to have English training. The donation of a mobile library by Indonesia XL to the outer slums of Jakarta was made to encourage underprivileged children to read.

Axiata also supports the Smart Park to provide internet, learning materials and telecommunication for children. To further enhance training Axiata donated Multiplexer Transmission Equipment to 14 universities, with extra support for hands-on training.

Axiata has established the Dialog Technology Programme, run by Dialog Telekom in Sri Lanka. So far it has helped 250 students, to develop the intellectual capital of future leaders. The programme provides support through interaction, mentoring, and skills development between scholars and employees.

In Bangledesh, Axiata has formed initiatives in education, which include University scholarships for three students to Multimedia University in Malaysia, the establishment of the Chittagong Skilld Development Centre (CSDC), and Underprivileged Children's Educational Programmes (UCEP-Bangledesh), providing world-class teaching and learning resources to disadvantaged children.

Finally, Multinet in Pakistan supports NGO's in the development of education and The Samart Group in Thailand support educational promotion, and professional skills development.

CSR on Child Protection

There were no specific examples of Axiata having involvement in CSR initiatives aimed at child protection.

CSR on Environment

Axiata are committed to promoting good environmental performance, better efficiency and reducing environmental impact of operations. They seek to reduce their ecological footprint through power savings and energy efficiency. Axiata also provide environmental education for children through the support of partnership scheme to create better awareness of the environement, its natural resources and environmental protection.

CSR on Economic and Social Wellbeing

Axiata seeks to enhance economic and social wellbeing through projects aimed to create a positive impact on rural areas, and by providing assistance in the aftermath of natural disasters.

Axiata supports an e-Village project intended to empower a rural villages in the south of Sri Lanka through access to ICT. Axiata created 33 access points and installed 39 computers with broadband connectivity. Axiata also supported the Last Mile Initiative (LMI) in Sri Lanka by helping to form the "Easy Seza Telecentres", which promotes shared access to ICTs across rural and remote areas.

Axiata's involvement in disaster relief include working with Mercy Malaysia to ensure communication in disaster areas to help with humanitarian relief efforts and the support of relief measures for natural disaster victims and underprivileged people in Thailand. Axiata also developed, in partnership with other stakeholders, the Disaster and Emergency Warning Network DEWN in Sri Lanka, to research and help transform the mobile into a life saving device in emergency situations.

Singtel

CSR Focus

SingTel is working in its countries of operation, Singapore and Australia, to look for ways to improve and implement policies and projects for positive impact on communities, the environment and the working market. As a signatory to the UN Global Compact, in Singapore, SingTel works to uphold principles of human rights, labour standards, environmental issues, and anti-corruption.

CSR on Health

SingTel has created the SingTel Touching Lives Fund (STLF) in Singapore. In the area of health the beneficiaries of this philanthropy programme so far has been the Association for Persons with Special Needs (APSN).

CSR on Education

Beneficiaries of the SingTel Touching Lives Fund (STLF) in the area of education were Special Needs schools, the Singapore Children's Society and Students Care Service. SingTel also has a regional scholarship programme for undergraduate studies at top universities in Asia Pacific.

CSR on Child Protection

SingTel has an Environmental Management System (EMS), which outlines forms of protection, the conservation of resources, and ways to minimise environmental impacts and risks. The system aims to reduce energy consumption, waste management, carbon emission and to increase recycling.

The company sponsored Earth Hour in 2009 and ran an environmental awareness programme for customers and employees through telecommunication channels. SingTel also has the Ascebdas Real Estate Investment Trust to build a green building data centre in Singapore.

CSR on Economic and Social Wellbeing

The beneficiaries of the SingTel Touching Lives Fund (STLF) in the area of economic and social wellbeing are the Fei Yue Community Services, the Milk Fund, and charities affiliated with the National Council of Social Services (NCSS).

SingTel assisted in the aftermath of natural disasters through funding for disaster relief assistance after earthquakes in China, May 2008, as well as support and funding for the Salvation Army Bushfire Appeal, in Victoria, Australia.

SingTel's Optus operation in Australia has a "Working Giving Programme" and in Singapore a programme called "Corporate SHARE", where staff give money, which is matched by SingTel and given to charities, particularly those supporting young people. Staff are also given a day of leave per year to donate to community causes. Staff for Optus also have the option to have three months paid leave to volunteer overseas (with Care Australia).

Finally SingTel is involved in sports advocacy through the use of satellite technology to enable Singapore's first women Mount Everest team to stay in touch with loved ones during their ascent and providing funding for multi-level sports teams.

Vodafone

CSR Focus

Vodafone's vision for 2010 is to be one of the most trusted companies in the markets where we operate. Its five year CR strategy – developed in 2005 and continually evolving – is designed to help us realise this vision and become the mobile company that contributes most to achieving he Millennium Development Goals. Its priorities are to capture the potential of mobile to bring socio-economic value in both emerging economies and developed markets, by broadening access for all; to progress in line with stakeholder priorities on climate change, safe internet usage and sustainable products and services, and to ensure its operating standards are of a consistent and appropriate level across the Group. The key themes outlined in its CSR plan are Access and Communications, Consumer Issues, Responsible Network Deployment, Mobile Phone masts and Health, Energy Use and Climate, Reuse and recycling, and the companies Supply Chain. Like most companies Vodafone CSR initiative intended to have a direct impact on Socio-Economic Development and delivered through the companies 22 foundations. .

CSR on Health

The International Commission on Non-Ionizing Radiation Protection (ICNIRP) has issued guidelines on levels of exposure to RF fields. Vodafone's policy on Health and Safety of radio frequency (RF) fields requires that all its base stations – and the mobile phones we sell – comply with

ICNIRP guidelines. In fact, RF field exposure from our base stations is typically hundreds, if not thousands, of times below the limits set by the guidelines. The company is also committed to monitoring ongoing research developments and providing comprehensive access to scientific reviews.

Vodafone is working hard to develop health solutions that will be delivered using mobile technology. The UN Foundation and Vodafone Foundation Technology Partnership's 'mHealth for Development' report is an extensive survey of the use of mobile technology to advance public health in the developing world. It showcases over 50 projects in 26 developing countries that provide health-related services via mobile technology.

CSR on Education

Education is not mentioned as a key area of focus for Vodafone and there are no specific,

CSR on Child Protection

Like many companies, Vodafone child protection initiatives have largely focused on ensuring children and young people's safer use of internet and mobile services,. In addition to information on the company's website it has also worked in partnership with other ICT companies and education organizations to develop online education resources that help teachers encourage their students to use mobile technology and internet responsibly. For example, the 'Teach Today' website, which provides advice to combat cyber bullying, was launched in six markets in April 2008. Vodafone has also continued to implement the European Framework for Safer Mobile Use by Younger Teenagers and Children & the Mobile Alliance agreement.

Another important focus is disadvantaged young people through sport and music programmes. In 2008/09, the Vodafone Foundation supported several sport and music programmes for disadvantaged and vulnerable young people, including: Donating £500,000 over three years to the Special Olympics to establish Unified Sports programmes – aiming to break down barriers between young people with and without intellectual disabilities – in Hungary, Italy, Romania, Turkey and the UK Contributing £500,000 to expand the Homeless World Cup to more than 60 countries, using a football tournament to bring homeless people together and help change their lives.

CSR on Environment

The Environment is an area of focus for Vodafone, especially in its India operation. Its CSR report details in one goals in terms of the environment, which is to develop a climate change strategy for Vodafone India and cut CO2 emissions' by 50% by 2020.

CSR on Economic and Social Wellbeing

All Vodafone's work in CSR is designed to improve the company's bottom line and the social well being of the countries in which they operate. In light of this aim, the company has played a significant role in increasing access to voice and innovative mobile services. It played a crucial role in proving the business case for mobile money transfers and continues to drive developments in this area.

In 2008/09, together with Safaricom in Kenya, it launched a trial of a cross-border mobile money transfer service between the UK and Kenya in association with Western Union. The trial extends the M-PESA service in Kenya to make international payments, following its pilot of a similar service in 2007/08 with Citibank. Partnering with Western Union gives the programme access to the money transfer company's global network of agents and trust processing centre for international remittances. The trial is taking place through a select number of Western Union agents based in Reading, UK. Consumers can send up to £100 for a fee of £4.90, or between £100 and £200 for a fee of £6.90, to any Safaricom mobile subscriber in Kenya. This is significantly cheaper than conventional bank transfers. Customers receiving remittances in Kenya can withdraw cash at any one of 4,000 M-PESA agents, or forward it to another mobile phone in Kenya.

Telesonera

CSR Focus

TeliaSonera's core business is to offer services that help people and companies communicate in a simple, effective and environmentally friendly way. Its approach to corporate responsibility is aligned with its business strategy and priorities, and part of every employee's daily work. The key themes for its CSR are customer privacy and network integrity, leadership and employee competence, fair business practices, access to communication services and protecting children online

CSR on Health

In supporting local communities in Eurasia, TeliaSonera Eurasia has taken the lead in supporting and developing social issues relevant in the local context, including health issues.

Examples of health initiatives include creating the first mobile dental clinic in Azerbaijan, particularly aimed at giving vulnerable children access to health care and providing a children's village in Kazakhstan with IT-connections and equipping local schools with PC's. Also, TEO is one of the biggest contributors to community development projects in Lithuania and has a long standing history of community involvement.

CSR on Education

Most of the company's work on education is aimed at its own employees.

CSR on Child Protection

Like most European based operators, Telesonara has primarily focused on protecting children from abuses of the internet. In Lithuania the TEOBUSAS, a mobile client service salon, visited eight cities during the year to teach parents and students about safer internet use. The lectures reached an audience of more than 1,500 individuals. In recent years, the TEOBUSAS has travelled around the country to provide residents in remote areas with the opportunity to become familiarized with modern telecommunications technologies, including audio and video systems.

The Telesonera company Yoigo was the first operator in Spain to publicly offer a Child Safeguard service aimed at preventing access to, and the spreading of, images of child sexual abuse. Users attempting to access a restricted webpage are redirected to a website that informs them of said restriction. This measure is directly effective for all 1.3 million Yoigo's customers using mobile internet. The Child Safeguard is included automatically and free of charge in the mobile internet service offered to Yoigo's customers. These efforts have increased the public awareness of child

online abuse and the availability of the Child Safeguard service and have motivated other mobile operators to strengthen their activities against child sexual abuse. The Child Safeguard service is developed and provided free of charge by TeliaSonera International Carrier. It was awarded “Best New Service” at the annual World Communication Awards in London in 2009.

Surfa lugnt (Safe surf), another Telesonera child protection initiative is a Swedish initiative aimed at increasing safety and security for young internet users. In 2009/2010, there is a national campaign to increase adults’ awareness of how children and young people use the internet in their everyday life. Only by understanding the upsides and opportunities for social interaction and sharing knowledge presented by the internet, can adults comprehend how to protect their children from online abuse or bullying. Surfa lugnt is a network organization initiated in 2005 by Telia and 40 other Swedish companies, organizations and authorities.

There are some non technological efforts that Telesonera puts to protecting children ECPAT Sweden is part of the international network “End Child Prostitution, Child Pornography and Trafficking in Children for Sexual Purposes", today present in 85 countries. Telia provides financial support to ECPAT Sweden’s web-based hotline, www.ecpathotline.se, where anyone can report anonymously on suspected cases of child pornography, trafficking and child sex tourism. All reports are forwarded to the police for investigation.

CSR on Environment

Telesonera is committed to environmentally sustainable practices in operations and promoting environmentally friendly services to customers. It is focused on energy efficiency, reducing CO2 emissions and is an active member of the UN Global Compact Network. Moldcell, Telesonera’s operator in Moldova, has participated in the development of the initiative “GO GREEN Office” to develop an Ecological Office Code, promoting and implementing ecological awareness into corporate culture. The main principles that are promoted internally and in relations with external stakeholders are “Reduce, Reuse, Recycle”. The code was launched at the May event “Green Day”, a national campaign to raise environmental awareness involving volunteers from Moldcell and 13 other companies.

Another example is Telia in Denmark, which introduced ”Mobilkomposten” in 2009, with the aim to get customers to hand in used mobile phones, and thereby ensure the correct disposal of electronic waste. Containers have been placed in Telia shops and at Holmbladsgade to collect the used telephones, and pamphlets with information about “Mobilkomposten” are enclosed, when customers buy new mobile phones. The disposal of the mobile phones that are collected is handled by a reputed external partner in environmental solutions.

CSR on Economic and Social Wellbeing

Telecommunication services contribute to a better world by enabling more people to connect to others and access information, education and entertainment. Our services drive growth, improve transparency and market efficiency, thus helping the development of a more inclusive society where everyone can benefit and contribute. Community initiatives to improve the ICT capacity of consumers so they can be digitally concluded have been undertaken in countries such as Nepal.

T-Mobile

CSR Focus

Encompassed in the term Corporate Responsibility, T-Mobile have three focus fields of activities; climate protection ("low-carbon society"), equality of opportunity in the new information society ("connect the unconnected"), and "connected life and work". The aim is to unite the social and environmental commitments with economic growth.

CSR on Health

Deutsche Telekom supports Doctors for Developing Countries through setting up ICT infrastructure, and its volunteers with funding and logistics. T-Mobile has the Motiva telemedicine project, which enables the remote diagnosis of heart failure patients through mobile calls - 'mobile visits'.

CSR on Education

The Deutsche Telekom Foundation, founded in 2003, aims to raise the level of education in the MINT subjects (Maths, IT, Natural Sciences, and Technology. They work conceptually and operationally to promote and implement excellence in day care centres through to universities, with partners from science and education. An 'Early education' program runs in day care and elementary schools, which helps provide ideas, materials and training for teachers. They support both government-run and private educational institutes by designing programs that provide skills for maths, science and technology. "Research holidays" is a course run to motivate children from disadvantaged backgrounds. The course, run for 2 weeks in holidays, teaches kids to interact and understand natural sciences. T-mobile's innovative learning concepts for secondary schools aim to combine learning in and outside school, through projects that combines knowledge and daily experimentation. For example, the "ExperimentierKuche" was a student laboratory set up in Bonn's Deutsches Museum in 2007, by students at the Bonn University, for school students to experiment with everyday things such as sweets or shampoo. The Telekom@School initiative provides free internet access to around 34,000 schools in Germany.

CSR on Child Protection

There was no specific examples of T-Mobile having involvement in CSR initiatives aimed at child protection other than through the benefits of education.

CSR on Environment

With the theme of 'low-carbon society' T Mobile aims to increase use of renewable energies, efficient resource management, waste disposal, digitised business processes, and development of communication solutions. T-Mobile also offsets their CO2 emissions with climate protection measures.

CSR on Economic and Social Wellbeing

Deutsche Telekom has the goal of connecting the unconnected by increasing access to digital media. They promote integration of people in information and knowledge society through the expansion of networks, particularly broadband. The group supports the Digital Bridge Project's "Egalnet" program, which is a free internet platform for underprivileged populations in Hungary. Users from the disadvantaged populations can exchange information, view news and events, create their own website and social network, in order empower and increase involvement in society. The employees in Magyar Telekom, Hungary are involved in social and environmental projects linked into this program.

T-Mobile have a wealth of staff initiatives that feed into the economic and social wellbeing of populations. In the USA a staff initiative was the "Huddle up" campaign started to improve recreation areas for children in areas with poor infrastructure and economic drive. Staff get given time off work to contribute their time to the project. T Mobile also has a "Give a little...change a lot" campaign in the UK where employees are given 15 hours off work per year to volunteer. T Mobile also doubles up over £1000 individually or teams of £5000 that is raised and given to any non-profit organization of the staff's choice. The employees in Hungary are involved in social and environmental projects linked into this program.

T Mobile, UK was one of the founding members of the Russell Commission, which promotes youth volunteering and civic service. They also support for TimeBank, which inspires and connects youth with volunteering projects in their communities, providing over 10,000 activities. Youth Action Network is another charity T Mobile gives its support to. Youth Action Network trains volunteers and gives financial assistance for project ideas

Telenor

CSR on Health

Telenor's CSR health initiatives focus on one of it least developed countries of operation, Bangladesh. They have carried out two main initiatives; HealthLine and a SMS polio campaign

HealthLine aims to provide 'Mobile Access to Medical Services' for those living in remote areas. HealthLine is a 24/7 medical call centre staffed by licensed physicians that are available to Grameenphone subscribers. Consultations provide information on doctors and medical facilities, drugs and pharmacies, lab test reports, medical advice/ consultations from doctors, and emergency advice. Phamacies also use the HealthLine as a resource to facilitate their services.

The SMS polio campaign was set up in partnership with World Health Organisation (WHO). Grameenphone uses SMS alerts to remind subscribers to vaccinate all children under the age of five for polio.

CSR on Education

Telenor's CSR education initiatives focus on its least developed countries of operation, Bangladesh and Pakistan. These consist of three main initiatives involving literacy, improved education to keep children from working, and training.

Grameenphone have a Microsoft digital literacy programme, to improve digital literacy among rural people. The Digital Literacy curriculum is an e-learning module which teaches basic computer skills to develop new social and economic opportunities. The project is to mainly target rural students, unemployed youth and women. The curriculum is disseminated through more than 500 authorised Community Information Centers (CICs) as well as through other vehicles of Grameenphone initiatives, such as school cyclone shelters, Information Boats and other educational institutions across Bangladesh.

An agreement was reached with UNICEF Norway for a program to combat child labour in Bangladesh – "Combating Child Labour through Education". The approach is holistic to target over 12000 child workers in 6 cities through educating children, education social workers, and educating society. As children often financially support their households through working the project encompasses non-formal education, skills training, and safe work placements, along with support for the family. The training of social workers is to build institutional capacity for

educating working children and having knowledge about the issues of child labour. The education of society is for a nationwide campaign to raise awareness about children working in hazardous conditions, and the harmful effects of child abuse and child labour.

In Pakistan Telecom Futures is an industry-academia partnership in the telecommunications sector to provide training and opportunities for teachers and students. The program is targeted at the less privileged of Pakistan's population and its youth. The program provides training and awards for teachers, specialized equipment for students, internships and jobs for relevant diploma holders.

CSR on Child Protection

The initiative "Combating Child Labour through Education" mentioned above is to actively combat child labour in Bangladesh directly through education. In Montenegro pupils from elementary schools in central and northern regions that walk long distances to school are provided with a mobile in order to provide protection for them and encourage their access to education.

Telenor is also involved in protecting children through filtering and protecting children from unsuitable content on the internet and mobile. In Norway, Telenor is launching a security package for children's mobiles so as to protect them from accessing unwanted content. An initiative in Norway, Denmark and Sweden to protect children from abuse through telecommunications is "Fighting child sexual abuse online", which is a filter blocking mobile and computer access to child sexual abuse content. Telenor targets bullying through telecommunications through partnering in "United front against digital bullying", which is an anti-bullying campaign aimed at raising awareness about digital bullying. They also provide a filter on mobiles to block bullies from hassling other children through the project "Shutting mobile phone bullies out".

CSR on Environment

Telenor has four focus areas within the company; reducing internal emissions, evaluating sources of renewable energy, exploring business opportunities, and engaging employees with environmental and climate change issues. Telenor aims to reduce CO2 emission in operations by 49% from 2008 to 2017. They promote ICT uses to reduce travel, in order for machine-to-machine (M2M) communication to reduce paper and transport. The M2M is a focus area for future growth for Telenor. Environmental management is targeted, with the main principles as energy consumption and climate change, environmentally effective procurement, waste management and recycling, and installations and radio wave emissions.

Telenor supported Earth Hour on 27.03.10 in a number of their operating countries. In Malaysia they launched a Mangrove-saving Project by engaging students, business and authorities in Kuala Selangor region. DiGi also has an 'Amazing Malaysians' programme which supports their cultural heritage by identifying those that are proactive in the field and engaging them in cultural projects involving children.

Telenor is also involved in mobile recycling initiatives in some of their operating countries and in Hungary Telenor has the "Make calls with the wind" project, where they have commissioned a wind-powered base station.

CSR on Economic and Social Wellbeing

Telenor has, in partnership, carried out research in 2009 – "Towards a connected world" - studying the social and economic impact of the internet in emerging economies, conducted in Bangladesh, Thailand, and Serbia. The study found that building internet infrastructure can create new jobs, better social conditions, as well as higher

revenues. On this basis Telenor are aiming to bridge the digital divide and widen access to the internet. They have a similar stance on mobile communications that it contributes to social inclusion. In 2007 Telenor commissioned another study on their markets in Bangladesh, Malaysia, Pakistan, Thailand, Serbia and Ukraine – "Mobile Industry Powers Emerging Economies" - which revealed correlation between mobile penetration and GDP growth as well as positive impacts on health, education and rural areas. They are keen on empowerment through access and work with people locally to understand their needs and then with partners to develop products and services that contribute to users reaching their potential.

In Bangladesh Grameenphone, Bangladesh Power and Development Board launched a service "bill-pay-by-phone" to make bill payments through their mobile or authorised BillPay centres e.g. electricity bills. Grameenphone launched "CellBazaar" in Bangladesh, which is an electronic marketplace, using SMS, WAP, or internet, buyers and sellers can interact. They also have Community Information Centers (CICs), with over 500 CICs across the country to provide communications services to the unconnected.

In Pakistan, ApnaPCO have "Share a Mobile", which is a business-in-a-box that contains a robust phone so there is access to communication in rural areas - it basically acts like a phone box but is a mobile. In Thailand, there is a dtac service 1677 Farmer Information Superhighway, which provides information on agriculture developments and updates. In Hungary Telenor provides social workers with free mobile internet and laptops to improve their work on the streets, and in their field work.

Annex 3
Most Popular Mobile Services in the Case Study Countries

Country	Operator	Most Popular	Reason for Popularity	2nd Most Popular
Bangla-desh	Warid	CRBT	· Relief of boredom · Overcomes illiteracy · Popular music culture	News updates
	Grameenphone	IVR – music, sports, news	· Overcomes illiteracy · Ease of use	CRBT
	Banglalink	CRBT	· Personalisation · Popular music culture	...
	Robi	IVR - m-ticketing service	· Accessibility · Ease of use · No language barrier · No handset dependency	IVR infotainment
Egypt	MobiNil	CRBT	· Ease of use · Inclusivity	WAP
	Etisalat	CRBT	· Personalisation · Relief of waiting	Mobile TV/ Video on de-mand
Ghana	Zain	CRBT	· Satisfies customer wants · Targets market	Data
	Vodafone	CRBT	· Personalisation · Popular music culture	Infoshop
	Kasapa	CDMA	· Only CDMA network in Ghana	
Iraq	Korek	CRBT	· Personalisation · Ease of use · Feelings of isolation	SMS chat services
	Zain	IVR	· Ease of use · Accessibility · Used for VAS/content	
	Asiacell	CRBT	· Popular music culture · Desire to forget troubles · Ease of use	GPRS
Kosovo	IPKO	GPRS	· Demand for internet	MMS
	Vala	...	...	...
Lao PDR	Laotel	MMS	· Basic service	...
	Zain	Mobile internet – GPRS/EDGE	· Demand for internet · Social networking	...

Malawi	TNM	...	...	...
Mongolia	G Mobile	G-Mobile NGN (allows users to call outside Mongolia with WiFi enabled phones)	· Number of Mongolian economic migrants living abroad · Connecting loved ones	...
	Skytel	Mobile internet	· Fast and easy access · Demand for internet	...
Philippines	Globe	Internet	· Pent-up demand · Facebook · Youth usage	CBRT used to be most popular but subscription regulation changed
Sierra Leone	Zain	Mobile internet	· User interest · Pent – up demand	Data
Sri Lanka	Etisalat	CRBT	· Popular music culture · Ease of use · No language barrier	GIFTING and Credit transfer
	Dialog	Infotainment – ringtones, music, news, sports, info	· Affordability · Ease of use · Use of local language	...
	Mobitel	CRBT	· Personalisation	BB internet and GPRS
Suriname	Digicel	Blackberry services	· Content and application use generally low - not much to measure against	
	Telesur	Internet	Pent-up demand, social networking	
Uganda	Zain	SMS content – news and sport	· User interest (Content not as popular as voice and SMS because of language barriers)	
	Orange	Mobile broadband	· Pent-up demand · Availability of USB modems	
Zambia	Zain	Competitions	· Prizes	
	Zamtel	...	Currently no services other than voice and SMS available – to launch in 2010	

Annex 4
Organisations Working in the M4D Space

The following table provides an overview of key players or stakeholders within the M4D arena. Some of the Organisations or Agencies are directly involved in specific mobile projects or research to enhance development, while others contribute through financial means or through their support for other organisations. There is a mixture of public, private and third sector organisations, as well as collaborations to further enhance the M4D community. While this is an extensive list it does not include every NGO/CBO involved in the M4D community, instead it highlights organisations or entities that work across countries and regions , who have key initiatives that link into or have further potential to link into the M4D area, and those that have influential links in either the public or private sector.

Organisation	About	Work in M4D	URL
Building Communication Opportunities (BCO) Alliance	Building Communication Opportunities (BCO) Alliance is a partnership of 11 development agencies working on information, communications and development. BCOAlliance partners believe that information and communications are of crucial importance in poverty reduction - in enabling the poor to have their say and to get better access to knowledge and other resources.	ICT impact on climate change and development : BCO Alliance target mixed technologies – old and new combined	http://www.bcoalliance.org/node/52
Bill and Melinda Gates Foundation	The Bill & Melinda Gates Foundation work to help all people lead healthy, productive lives. In developing countries, it focuses on improving people's health and giving them the chance to lift themselves out of hunger and extreme poverty.	An Initiative with Grameen Foundation, through provision of funding, the Gates Foundation works to expand safe access to formal savings accounts for poor people, especially those living on less than $1.25 per day, by harnessing technology and innovation. Its Microsavings Initiative works with microfinance institutions in Ethiopia, India and the Philippines to test and refine models that can be used by other institutions to provide savings options for people living at the very bottom of the economic ladder.	http://www.gfusa.org/press-releases/grameen-foundation-launching-new-initiative-give-poor-people-safe-access-savings-acco
CIDA	Within the framework of its aid effectiveness agenda and to sharpen the focus of Canada's international assistance, the Government of Canada has established three priority themes to guide CIDA's work: increasing food security; securing the future of children and youth; and stimulating sustainable economic growth.	CIDA does not specifically work in M4D but works with youth in the areas of child survival, including maternal health, access to quality education and in support of safe and secure futures for children and youth. However CIDA states the consideration of ICT applicability in projects to achieve their goals.	http://www.acdi-cida.gc.ca/acdi-cida/ACDI-CIDA.nsf/eng/home

Organisation	About	Work in M4D	URL
Google.org	Google.org uses Google's strengths in information and technology to build products and advocate for policies that address global challenges. It builds technology products to address global challenges such as climate change, pandemic disease and poverty. Google.org focus their efforts on activities that are uniquely suited to Google's engineering teams, global infrastructure and user-driven approach, taking advantage of the ability to innovate and scale.	Google.org created InSTEDD, which works in M4D, as one of its first projects within its Predict and Prevent Initiative. Google.org gives: InSTEDD (1): $5M multi-year grant to establish this non-profit organization focused on improving early detection, preparedness, and response capabilities for global health threats and humanitarian crises; InSTEDD (2): $6.67M multi-year grant to support InSTEDD and further develop InSTEDD's free and open source tools, particularly in support of disease surveillance in the Mekong region.	http://www.google.org
Grameen Foundation	Grameen Foundation helps the world's poorest, especially women, improve their lives and escape poverty through access to microfinance and technology by: - Creating economic opportunities for the world's poorest - Building large scale, easy-to-replicate solutions to end the cycle of poverty in developing countries around the world - Leveraging the knowledge and expertise of local partners to create the most effective programs possible - Leading the industry in measuring impact and delivering results	Grameen Foundation seeks to improve access to information and communications in poor and rural communities. Grameen believe technology can help create more economic opportunities, enable people to participate more fully in civic society, and connect them to the wider global community. Their focus is in microfinance with technology as an empowerment for the poor and mobile financial services.	http://www.grameenfoundation.org/
GSMA Development Fund	The GSMA Development Fund exists to accelerate economic, social and environmental development through the use of mobile technology. GSMA believe that providing tangible, accessible mobile services to people in developing countries is invaluable to society and can help improve people's lives. The Development Fund leverages the industry expertise of the GSMA and its members, as well as the development expertise of international agencies and non-profit organisations to accelerate mobile services in three areas: Connectivity, Energy and mServices.	GSMA Development Fund works in mHealth, connectivity to unconnected areas, mobile money, mAgri, mWomen, and green power for mobile.	http://www.gsmworld.com/our-work/mobile_planet/development_fund/index.htm
ICT4D Collective, Royal Holloway, University of London	The ICT4D Collective was initiated in 2004 and is a group of people committed to undertaking the highest possible quality of research in the field of ICT4D, and making the results of this available freely to the global community. Research is primarily in the interests of poor people and marginalised communities, wherever they may be found. In 2007, the Collective was awarded the Status of a UNESCO Chair in ICT4D. Members of the Collective also provide consultancy services in the field of ICT4D.	The collective follows the mobile sector in particular.	http://www.ict4d.org.uk/

Organisation	About	Work in M4D	URL
International Development Research Centre (IDRC)	The International Development Research Centre (IDRC) is a Crown corporation created by the Parliament of Canada in 1970 to help developing countries use science and technology to find practical, long-term solutions to the social, economic, and environmental problems they face. The IDRC's support is directed toward creating a local research community whose work will build healthier, more equitable, and more prosperous societies.	Mobile technologies are a focus within IDRC research, work and funding.	http://www.idrc.ca/en/ev-1-201-1-DO_TOPIC.html
infoDev	infoDev is a global development financing program among international development agencies, coordinated and served by an expert Secretariat housed in the Global ICT Department (GICT) of the World Bank, one of its key donors and founders. It acts as a neutral convener of dialogue, and as a coordinator of joint action among bilateral and multilateral donors—supporting global sharing of information on ICT for development (ICT4D), and helping to reduce duplication of efforts and investments. infoDev also forms partnerships with public and private-sector organizations who are innovators in the field of ICT4D. Priorities and strategies for infoDev are guided by its governance framework. The key themes are to innovate, connect, and transform.	Mobile initiatives feature in their Programmes & Reports department, and in many of infoDev's activities, such as m-Banking for the Poor.	http://www.infodev.org/en/Index.html
Intel	Intel is defined as Intel Sponsors of Tomorrow™, not only through technical innovation, but through endless efforts in education, environmental sustainability, healthcare, and more. Intel believes technology makes life more exciting and can help improve the lives of people around the world.	Intel supports research on the role of Trust in ICT4D. Intel also launched INSPIRE*EMPOWER Challenge Awards in 2008 which called on the developer community to submit innovative ideas for application of technology to address problems in the areas of health, education, economic development and the environment.	http://www.intel.com/about/index.htm?iid=gg_about+intel_aboutintel
Microsoft Research	Microsoft Research attempts to extend the state of the art in a variety of communication and collaboration scenarios, including systems that enhance information coding and communication of media signals and computer data over packet networks, multimedia technologies and applications to enable people to reach each other easily while separated by space or time, hardware for handheld and embedded devices such as mobile phones and sensor nodes, wireless and sensor networks, and the symbiotic relationships of such research with operating systems and distributed systems.	Particular interests in mobiles are: - Mobile healthcare - Scholarly communications tools, platforms, and services	http://research.microsoft.com/apps/dp/areas.aspx

Organisation	About	Work in M4D	URL
Nokia	Nokia is a mobile phone and mobile solutions company. It aims to connect people, combining advanced technology with personalized services that enables people to stay close to what matters to them. Nokia has partnered with the international child-centered development organization, Plan, to empower young people to communicate about issues that are important to them and to raise their awareness of rights and opportunities.	Nokia believes access to media helps empower young people. Engaging young people helps them become active citizens and enables them to have a say in decisions that affect their lives. With Plan, Nokia is running projects linked to child protection including Child Helplines in East Africa. It has further partnered with the World Bank to open a sub-Saharan research centre in Nairobi, NoRa, which aims to research how Nokia products and services can tackle issues of healthcare, education, transport, social media, energy management, entrepreneurship and arts and culture in Africa. Ultimately the aim is to develop devices that suit the African market and telecommunications trends in various countries.	http://www.nokia.com/home
Nokia Siemens	Nokia Siemens is the infrastructure collaboration of the separate communication entities Nokia and Siemens.	Nokia Siemens has partnered with ITU to bring affordable connectivity to the world's rural and remote areas. The system is designed to bring communication services to underserved markets as it extends mobile voice and data coverage to rural villages. It uses a low-cost, franchise based entrepreneurial business model: operators set up village-based mobile access points linked to regional centre. Village "hosts", in contract with the network operator, are trained to maintain the access point equipment and run the village network. These entrepreneurs sell prepaid mobile phone subscriptions to other villagers and are thus incentivized to increase the subscriber base. They pass on basic ICT skills and knowledge to help people access and use the services. Nokia Siemens also works on disaster relief and preparedness. In February 2009, they demonstrated a new emergency communications package at the Mobile World Congress, which is to be further developed in collaboration with the Finnish Red Cross during 2010. The system is designed to be used to provide emergency communications when disaster strikes and disrupts existing communications networks.	http://www.nokiasiemensnetworks.com/sites/default/files/about-us/CR_Full_Report_Low_Res_Final.pdf
Rockefeller Foundation	The Rockefeller Foundation support work that helps people tap into globalization's benefits and strengthen resilience to risks.	Rockefeller has an activity in eHealth with the eHealth Initiative for the Global South, which includes a mHealth element in the health support programme.	http://www.rockefellerfoundation.org/
Shuttleworth Foundation	The South Africa Foundation is at its core an experiment in open philanthropy and uses alternative funding methodologies, new technologies and collaborative ways of working to ensure that every initiative receives the best exposure and resources to succeed.	Currently projects use mobiles to enhance socioeconomic statuses; mLit, an education application, and Village Telco, which develops a low-cost, scalable, standards-based WiFi telephone company toolkit using open source software and open hardware.	http://www.shuttleworthfoundation.org/

Organisation	About	Work in M4D	URL
UNDP	UNDP is the UN's global development network, an organization advocating for change and connecting countries to knowledge, experience and resources to help people build a better life. On the ground in 166 countries, working with them on their own solutions to global and national development challenges. The aim is to develop local capacity by drawing on the people of UNDP and its range of partners.	The UNDP supports the Open Mobile Consortium, which is a partnership of application providers working towards the development of a common framework for mobile applications. Ilt also has helped to fund the Mesh Potato innovation, which is a VoIP box based on mesh networking protocols in order to provide low cost voice communications to under-served areas.	http://www.undp.org/
UNESCO	UNESCO has a communication development focus, with themes of access to information, capacity building, content development, freedom of expression, and media development.	UNESCO promotes mobile innovation and use in a number of its projects, particularly in education, such as the expansion of women's 'literacy by mobile phone' programme.	http://portal.unesco.org/ci/en/ev.php-URL_ID=1657&URL_DO=DO_TOPIC&URL_SECTION=201.html
USAID	USAID is an independent federal government agency that receives overall foreign policy guidance from the Secretary of State. USAID supports long-term and equitable economic growth and advances U.S. foreign policy objectives by supporting: economic growth, agriculture, and trade; global health; democracy, conflict prevention, and humanitarian assistance.	USAID has an agricultural program in Zambia, Mozambique and Malawi in which mobile phones are used for the delivery of information on local market prices.	http://www.usaid.gov/
Vodafone Group Foundation	The Vodafone Foundation is at the centre of a network of Vodafone's global and local social investment programs.	The Foundation makes social investments by funding projects which support disaster relief and preparedness including the "Red Alert Programme", through projects which use mobile technology for the benefit of all, and via Vodafone's World of Difference program. A Vodafone Foundation and UN Foundation partnership, in 2008, launched a programme that looked at emergency relief and connecting separated families, and empowering health workers through disaster relief communications, mobile health development, and thought leadership and innovation.	http://www.vodafone.com/start/foundation.html
World Bank	The World Bank is a source of financial and technical assistance to developing countries around the world. The mission is to fight poverty with passion and professionalism for lasting results and to help people help themselves and their environment by providing resources, sharing knowledge, building capacity and forging partnerships in the public and private sectors.	The World Bank promotes the use of mobiles in the research conducted and in projects carried out, particularly looking at innovative mobile applications in health, education, agriculture and rural development. The World Bank has a particular interest in mobile banking.	Projects: http://search.worldbank.org/projects?qterm=mobile%20phone and Research: http://search.worldbank.org/research?qterm=mobile%20phone

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