



Local residents at a Vodacom phone shop, South Africa. The shops provide telephone access to people in low-income neighbourhoods who can't afford to buy their own mobiles.

Tens of millions of people in countries such as Tanzania and Kenya are using mobile phones even though they are struggling to meet their basic needs. This rush to mobiles raises fascinating questions about the impact of mobiles on people's lives in developing countries, and the role of operators such as Vodafone.

It is easy to understand the popularity of mobile phones as consumer gadgets in wealthy countries, where they have become a must-have item for people of all ages and income levels, so that they now easily outnumber fixed line phone connections<sup>1</sup>. But low and middle income countries have latched on to the trend – their citizens now make up more than 20% of the world's mobile phone users<sup>2</sup>.

The growth in numbers of mobile phone subscribers in developing countries is now twice that in developed countries<sup>2</sup>. As a result mobiles now account for 75% of all phone connections in 19 of the poorest African countries<sup>2</sup>.

## The SIM project

Vodafone has launched a project to try and understand the implications. It brings together a group of eminent academics, sociologists and economists to examine the 'socio-economic impact of mobiles' (SIM) in poor countries.

The SIM Project aims to identify how people use mobile communication and how this affects social and economic growth at both the community and national level.

A first round of research in Africa has produced some interesting findings.

### Research focus on Africa

More than half the world's poorest countries are in Africa, and they face many of the world's most intractable social and economic challenges. Yet in the past five years mobile communication has grown faster in sub-Saharan Africa than in most parts of the world<sup>2</sup>.

This dramatic growth has risen to meet a range of everyday needs stemming from Africa's particular physical, social and economic landscape. Physically, distances are enormous, which makes transport and travel difficult. People in isolated communities often do not have access to basic services including electricity and communication. Economic challenges include lack of information, infrastructure, employment, trade and finance.

Vodafone commissioned two surveys in 2004 to learn more about these challenges on the ground and to find out the impact of mobile in developing countries. The first survey covered 475 people in South African and Tanzanian communities, while the second involved nearly 300 small businesses in South Africa and Egypt.

## Addressing the needs of local communities

Key Facts	South Africa	Tanzania
Population	44.8 million	35.3 million
People surveyed	252	223
% in survey own a mobile	67%	42%
% in survey use a mobile	72%	83%
% in survey with access to a mobile	76%	97%
% in survey with landline access	67%	28%

The research in South Africa and Tanzania found that the greatest impact of mobiles has been reducing the need to travel. People have also used their phones to stay in touch with absent friends and relatives, and to access health and emergency services – being able to get a medical diagnosis by phone can mean the difference between life and death, especially when the nearest doctor is 90 miles away.



Surveying the Emondlo Community in Kwa Zulu Natal, South Africa. The community survey covered 252 people in South Africa and 223 in Tanzania.

Avoiding travel is especially significant in Tanzania, where people often need to travel long distances to work, using poor roads and transport. But in both countries people said they had saved time and money by avoiding expensive and unreliable transport, and being able to stay in touch had substantially improved relationships.

Mobiles have helped poor people in remote areas to find employment without travelling long distances. And they have provided better access to business information, especially in Tanzania where one in four people said they use mobiles for business.

At this early stage it is difficult to point to any causal link between mobile phone ownership and growth in employment. In Tanzania, mobile phone owners report an increase in full-time employment since phone masts were erected, but it is possible that they bought their mobiles after finding work. In South Africa there is evidence of a greater increase in income among people who have had a mobile for three years or more, which does suggest some causal link.

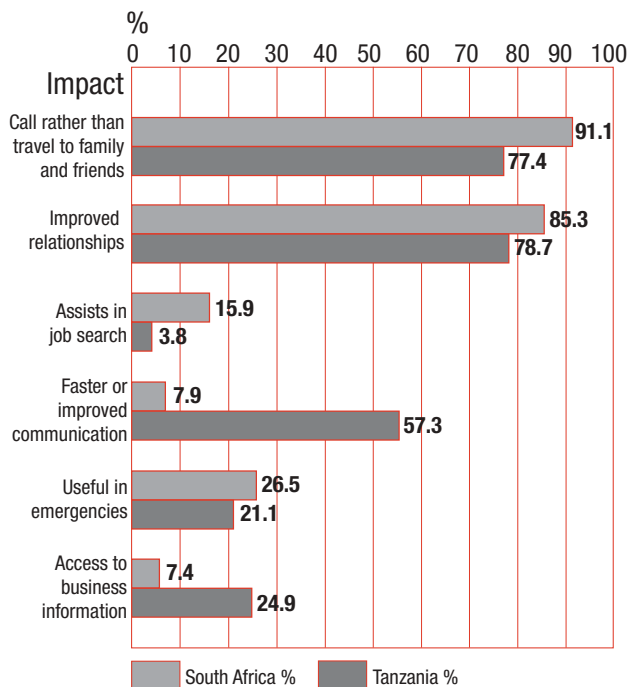
<sup>1</sup> UNDP 2003

<sup>2</sup> International Telecommunications Union (ITU) data

# Impact of mobile phones in the developing world

## Benefits of mobile phones for communities

(Responses to a survey of local communities in South Africa and Tanzania)



## Examples of the impact of mobile on local communities

- In Tanangozi, a farming community in west Tanzania, most butchers cannot stock large amounts of meat because they have no electricity or cannot afford a refrigerator. Butchers frequently run out of meat and cannot serve their customers. Customers can now use mobiles to place orders ahead of collection, enabling butchers to buy the right amount to satisfy their customers' needs, enabling efficiencies in the whole value chain.
- In South Africa and Tanzania it is common for families to be separated for long periods because of the need to look for work

a long way from home. Mobile phones are enabling workers to keep in touch with their families in these situations.

- In Mango Parish, a coffee farming community near Mount Kilimanjaro, mobile phones are helping to improve the taxi service. Instead of a 20-minute average wait, taxis can be called for passengers, on a 'just-in-time' basis.
- In a township in Cape Town, mobile phones are used to buy electricity cards (pre-paid cards used by households to purchase electricity units). Households wanting to buy cards send a text message to the seller of electricity units, and then the electricity provider sends a text message to the household with the code number to make the purchase.
- Rent from the mobile phone mast in Mango Parish, Tanzania, has been put towards the construction of a health clinic and dispensary. The church uses mobile phones to talk to its sister church in the United States, which is a benefactor of the Mango Parish community.
- Two job seekers from Kwa Kgapanne, South Africa, found employment using their mobile phone. 42% of mobile phone users in the local community used their mobile phones for seeking employment, and 20% of mobile phone users made weekly calls about job opportunities. Having a mobile phone is important for not only making calls about opportunities, but also for being contactable should they be successful or should another position arise in the future. Without a mobile phone, and with no private fixed line service, there are few options for employers to contact prospective employees.
- Mobile phones assist students in Kwa Phake, South Africa, to study with UNISA (University of South Africa) via correspondence. Instead of having to travel to institutions to find out critical information they can easily access the information over the phone. Monthly calls for education purposes were made by 31% of respondents in the village.
- Mobile phones have been used to communicate with Tanesco, the electricity provider in Tanzania, to inform them of power cuts.

## Addressing the needs of small businesses

Key facts	Egypt	South Africa
Population	70.7 million	44.8 million
Businesses surveyed	150	140
% in survey using a mobile for work	85%	89%
% used a mobile 5 years ago	11%	34%
No phone access prior to mobile	27%	15%

Micro-enterprise and small businesses are vital to economic growth and prosperity in developing countries. The survey of small businesses and sole traders in Egypt (Cairo) and South Africa (Cape Town, Johannesburg and Durban as well as small rural communities) highlights the extent to which mobile communication is helping this important sector of the economy.



Street trader completing the questionnaire in Durban, South Africa. The survey covered 140 businesses in South Africa and 150 in Egypt.

# Impact of mobile phones in the developing world

## Generating revenue and reducing costs

People can make money directly from buying mobile “airtime” and reselling it to others. But there are many less direct ways that mobiles are creating business opportunities. For example, they can provide farmers with weather and market information that helps them to decide which crops to plant, or when to harvest. Similarly, businesses can reduce costs by using their mobiles to shop around for lower prices or to replace expensive services such as post or travel.

The business survey confirmed that mobiles can have a positive impact on the bottom line. About three in five small businesses interviewed (59% of Egyptian and 62% of South African) said mobile phones have helped to increase their profits, and almost a third of the total, (31% and 27% respectively), said the increase in profits had had a large impact.

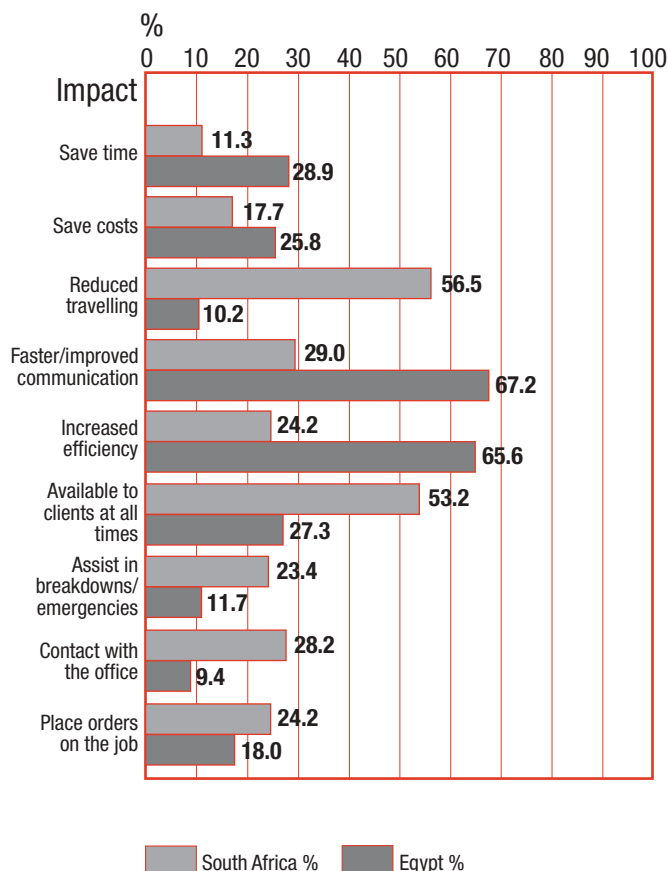
This is despite the cost of the mobile phones – 80% of small businesses in Egypt and over 50% in South Africa said mobile calls cost more than using fixed lines.

Businesses also reported:

- faster or improved communication (especially in Egypt where nearly one third of businesses had no telephone access before mobile was introduced)
- reduced travel costs
- the ability to place orders without having to return to the office.

## Benefits of mobile phones for small business

(Responses to a survey of local communities in South Africa and Egypt)



Some issues are the same as in the developed world. People were concerned about network problems, health and electromagnetic fields (EMF), and having less free time and privacy.

The survey also highlighted differences between types of business and between urban and rural businesses. Professional firms valued being available to clients and in contact with employees when people are away from the office. Tradespeople and retailers mentioned avoiding travel as a key impact. Reduced travelling was also more important for rural businesses than for urban ones.

## Access to banking and finance

Vodafone is participating in a project in Kenya and Tanzania (in partnership with Safaricom and Vodacom, and supported by the UK Government) to explore ways in which mobiles can help deliver financial services to poor, ‘unbanked’ customers. Access to financial services is important for the success of micro-entrepreneurs and small businesses, but finance is not available to many of those who could benefit.

Early signs are positive, based on the ability of mobile technology to transmit loan applications and check credit details instantly and securely. This means that banks can extend services to areas they don’t reach at the moment, and to individuals who have not previously been considered viable customers.

Vodafone, Vodacom and Safaricom believe their networks, data transfer and billing systems can help plug the finance gap. They are working with commercial banks and not-for-profit micro-finance institutions to develop a workable and replicable business model.

## Examples of the impact of mobile on small businesses

- In Egypt small shopkeepers often have to run errands to meet customer requirements, requiring them to shut their shops while they are away. Mobile phones mean they can phone through customer orders and get them delivered, allowing their shops to stay open for business.
- In South Africa construction workers phone through orders for building materials while on-site, saving time and travel.
- The small business study also surveyed nine businesses in Tanzania, including Mafia Island where the Vodafone Foundation has funded a fisheries project with WWF. Here fishermen use mobile phones to get market, as well as fishing and weather information, which helps them manage their time better and find out the price of fish while still off-shore.
- When the engine of a Mafia Island fishing boat stalled 30 miles out from the shore, the fishermen on board were able to summon help on their mobile phone from other fishermen in the harbour, who came to their rescue.
- A manufacturer of small toys based in Cape Town employs deaf people with whom he communicates via text messaging. The owner believes that without mobile phone technology to help them communicate it would not be possible to employ them.
- Some businessmen use their mobile phones to take pictures for business purposes. Real estate agents take pictures of properties for potential buyers, a car hire firm takes pictures of cars for prospective clients and a tow truck operator takes photos of crash scenes for insurance purposes. The small business operators send the pictures directly through their mobile phone, or via email, using Bluetooth to transfer the image.

# Impact of mobile phones in the developing world

## The bigger picture

The SIM Project is studying the macro-economic impact of mobiles in developing countries, specifically the links between mobile telecommunications, economic growth and foreign direct investment (FDI).

Investment in telecommunications in Africa has been about 5.5% of total investment in recent years<sup>2</sup>. The number of mobile subscribers in poor countries has grown at an average of about 60% a year in the past 5 years<sup>3</sup>, and the number of actual users is even greater, as people often share phones. But the links to broad economic performance are complex.

Professor Leonard Waverman of London Business School<sup>3</sup> directed an analysis of mobile growth in relation to Gross Domestic Product (GDP, or national output) in 38 low-income and lower-middle income countries between 1996 and 2002. He found that mobiles do seem to have a strong impact on GDP.

Research by Frontier Economics<sup>4</sup> shows that telecommunications in general are linked to higher FDI, although fixed lines seem to have more impact than mobiles. An increase of 1% in fixed line penetration is associated with an increase of between 1% and 1.2% in net foreign investment, while a 1% increase in mobile penetration is associated with an increase of about 0.5%. The spread of mobiles in Africa is so recent that it will be some years before any causal link can be established, but a correlation between mobiles and FDI is clear.

## The mobile industry challenge

The evidence highlights the extent to which mobile is a leap-frog technology, bringing communications to whole communities that previously had little or no access to fixed line telephones. In Tanzania, for example, only 28% of people in the community survey said they could access a fixed line somewhere in the community, compared with 97% who could access a mobile phone. Mobile is easier, cheaper and more flexible to deploy than fixed line communications, and mobile coverage delivers a basic infrastructure of communication to communities that road, rail and other communications infrastructure cannot reach as easily.

But there are still other challenges to be overcome, particularly around the areas of affordability and distribution. Some innovative business models have already been developed, but for mobile technology to capitalise on its innate advantages, it will require further creative thinking 'outside the box'.

## Business models for affordability

People in poorer communities often cannot afford to buy services as individuals, but can get together with members of their family or community to increase their buying power. New business models have to respond to this, but it is not always straightforward and there are no standard solutions. New models have to be developed over time, often through an iterative process.

For example, Vodacom in South Africa has developed a Community Service shared access model, similar to the internet café concept. Local entrepreneurs re-sell call time from specially constructed shops connected to the mobile network, each containing a number of handsets. This shared-access model generates a significant proportion of mobile calls made in South Africa.

Although it is successful in South Africa, this model is not necessarily replicable in other markets, emphasising the need to understand how different communities, businesses and entrepreneurs operate, and the importance of tailoring models to meet specific needs.

Pricing structure is also important. This applies to the cost of calls, how call time is purchased and the cost of handsets. In Tanzania, for example, decreasing the size of individual top-up vouchers has made mobile communication more affordable as people can buy call time in smaller quantities. In Romania, one of the poorest countries in Europe, a market in second hand phones, which cost around two-thirds of the price of new ones, is enabling at least one in six of the population to become mobile users.

## Business models for distribution

Alan Knott-Craig, the CEO of Vodacom, is fond of saying that the key to successful distribution models is to allow the middleman to make a buck.

This is what Vodacom is doing with its Community Service scheme in South Africa, where local entrepreneurs re-sell call time to communities at a profit. Vodacom also helps the entrepreneurs to get their business off the ground, through training and help with finance.

In other markets, such as the Philippines, operators have achieved distribution in remote areas by using resellers. They buy 'bulk airtime' that can be resold in smaller, more affordable packages by transferring it from phone to phone via SMS (text messaging).

<sup>2</sup> ITU

<sup>3</sup> Waverman, Meschi and Fuss, London Business School, 2004

<sup>4</sup> The relationship between mobile communications and FDI, July 2004

# Impact of mobile phones in the developing world

## Examples of business models for affordability and distribution



Inside a Vodacom phone shop. There are now over 5,000 shops providing more than 23,000 phone lines.

### Community service shops in South Africa

Vodacom's mobile phone shops are an example of an innovative solution to a community need. As part of its licence agreement in South Africa, Vodacom has set up phone shops that provide telephone access to people in low-income neighbourhoods who cannot afford to buy their own mobiles.

These shops (made from recycled shipping containers) are franchised to local entrepreneurs who sell services to customers on a pay-as-you-go basis. Vodacom spent almost \$20 million on purchasing and modifying 5,000 containers that between them provide more than 23,000 phone lines. The cost to the entrepreneur of setting up a shop can be recouped in a matter of months.

### Mobile retail outlets in Tanzania

Some of the most innovative solutions come from thinking 'outside the box'. In Dar es Salaam, many people who have lost the use of their legs because of leprosy are provided with hand-powered tricycles to help them get about. These people are a familiar sight on the streets of the capital as they weave in and out of the traffic. Vodacom saw an opportunity to help these disadvantaged people and to increase distribution of pre-paid airtime vouchers at the same time, by paying them to turn their tricycles into call time retail outlets.



A hand-powered tricycle in Dar es Salaam converted into a retail outlet for pre-paid airtime vouchers.

## Looking forward

There are many opportunities to develop innovative applications that contribute to social and economic development. The SIM research project is in its early stages, but Vodafone is committed to continuing with this work, to sharing the results and to working with others to create innovative and sustainable solutions where mobile communications can help to facilitate progress.

Vodafone welcomes any questions or comments on this project and its work in developing countries, and any suggestions you may have on how best to harness the power of mobiles in support of the global development agenda.

If you wish to engage further, please contact Vodafone's corporate responsibility team at [responsibility@vodafone.com](mailto:responsibility@vodafone.com).