



Universal Access

How Mobile can Bring Communications to All



Executive Summary



Executive Summary

Introduction

Mobile communication will deliver affordable voice, data and Internet services to more than 5 billion people by 2015 — double the number connected today. The GSM Association (GSMA) believes that the cost of mobile networks and devices will continue to fall, enabling affordable mobile services to be offered to people on very low incomes.

In many developing countries, mobile penetration is strongly correlated with economic growth and social benefits.¹ Governments and other stakeholders should therefore encourage the mobile industry to provide communications for all by lowering mobile-specific consumer taxes² and removing regulatory bottlenecks.³

Universal service funds⁴ have been adopted by governments in many developing countries, with the aim of improving access to telecommunications. The GSMA commissioned Intelcon Research to evaluate the success of these funds, by analysing key metrics in 92 developing countries. This analysis is supported by in-depth case studies, country comparisons and expert interviews, making it one of the most complete and authoritative studies conducted to date on the issue of universal service funds.⁵

¹ 'The Impact of Telecoms on Economic Growth in Developing Countries', Leonard Waverman, Meloria Meschi, Melvyn Fuss; Vodafone Policy Paper Series, No. 2, March 2005.

² See 'Tax and the Digital Divide' a GSM Association report, 2005. Download at www.gsmworld.com/tax.

³ See 'Regulation and the Digital Divide' a GSM Association report, 2006. Download at www.gsmworld.com/regulation.

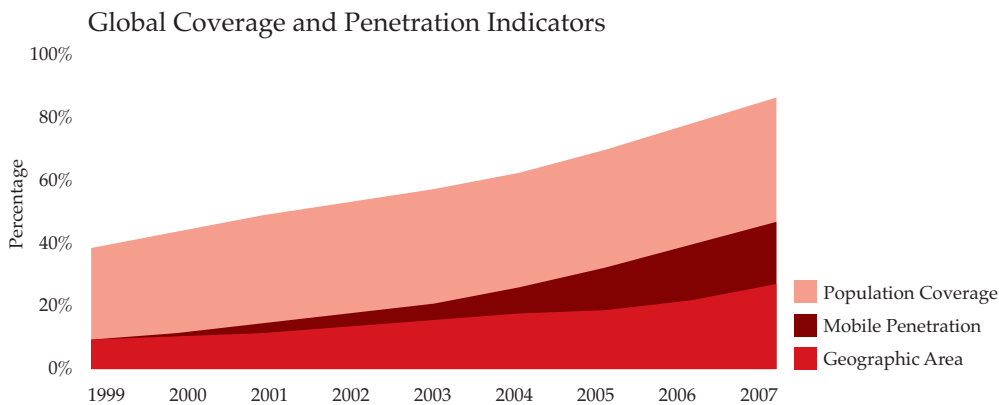
⁴ The majority of universal service funds (USFs) have been set up by governments in developing countries. They typically provide financial assistance for meeting targets for telephony and Internet services, and support 'vanguard' users such as schools, libraries, and commercial start-ups. The earliest funds concentrated on subsidising fixed network expansion in remote, high-cost areas; however this was before mobile networks offered lower cost and commercial solutions for such regions.

⁵ Countries with longstanding universal service funds, such as the United States and Australia, are not included in this report.

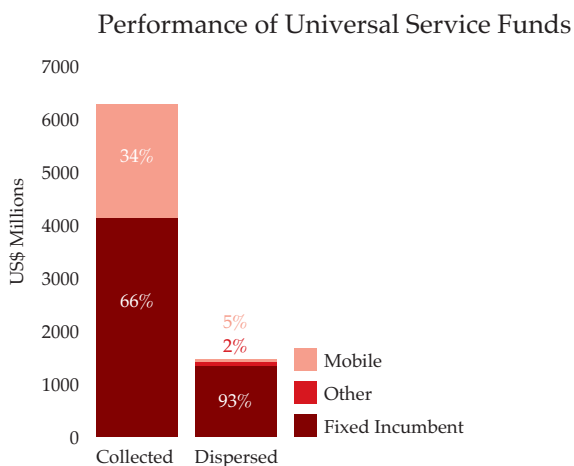
Executive Summary

The Study's Main Findings

- Mobile networks now cover 80% of the world's population, double the level in 2000. This can be attributed almost exclusively, to investment by mobile operators and the liberalisation of telecom markets by governments. By 2010, 90% of the world will be covered by mobile networks.



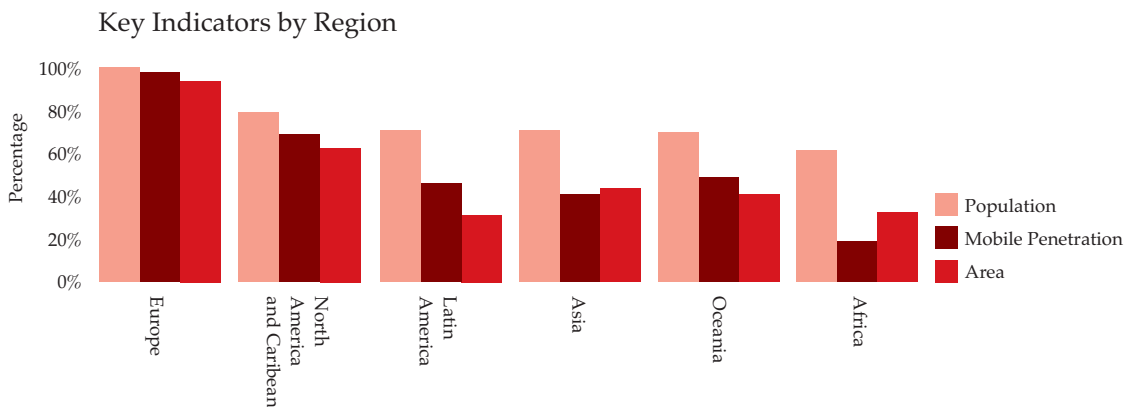
- 32 of the 92 developing countries surveyed have set up universal service funds, which levy contributions from mobile and fixed operators, to subsidise the rollout of telecommunications networks in rural areas. The levy is typically set at 1–2% of gross or net revenues, although a minority of funds collect a considerably higher amount, with the highest being 5% of gross revenues.
- To date, 15 of the 32 universal service funds have collected more than US\$6 billion from the telecommunications industry, of which US\$2 billion has come from the mobile industry. The remaining 17 funds are expected to levy fees soon, or have only recently begun to do so.
- Only 27% (US\$1.62 billion) of the US\$6 billion that has been collected has been redistributed to the telecommunications industry, to aid network expansion. The remaining 73% remains unallocated and unspent.





Executive Summary

- Universal service fund distribution has had little impact on improving market penetration, primarily because most of the money spent (93% of the US\$1.6 billion) has been on extending fixed-line networks, which are relatively expensive. In comparison, only 5% or US\$75 million has been allocated to mobile networks,⁶ which are far more cost efficient to deploy than fixed-line networks.



Implications

- Mobile operators could extend coverage to an additional 450 million people (7% of the world's population) living in rural areas, if the unallocated US\$4.4 billion universal service fund levies were invested into mobile network rollout.
- Universal service funds will extract a further US\$3.8 billion from the telecoms industry by the end of the decade. If 100% of this money was spent on increasing mobile network reach, a further 382 million people, (6% of the world's population) would have mobile coverage.
- If the unspent US\$4.4 billion universal service fund levies and the further US\$3.8 billion that will be collected between now and the end of the decade were spent on extending mobile networks, mobile coverage would be near 100% within 3.5 years.⁷
- Countries that collect universal service fund levies from the mobile industry and use them inefficiently i.e. by investing in fixed networks are preventing the mobile industry from being able to serve less well-off consumers through the delivery of sustainable and affordable mobile services.

⁶ The relative capital cost ratio between fixed and mobile connections, estimated by the World Bank, is 10 to 1, i.e. a mobile line can be deployed at 1/10th the cost of a fixed line.

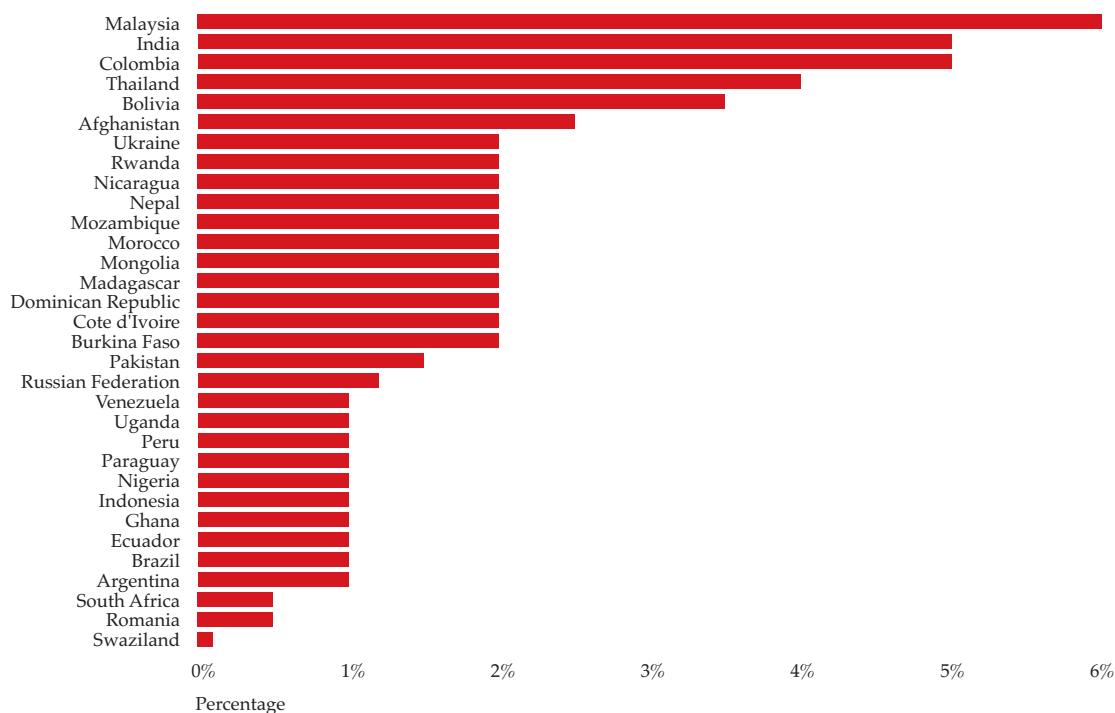
⁷ The estimates are based on an average cell site coverage radius of 20 km and population density at 15% of each country's average rural population density (assuming that extensions would be to sparsely populated, as-yet un-reached areas).

Executive Summary

Specific Recommendations

- Governments should regard market forces as the primary means to extend access and connections to mobile communications. Universal service funds should play a 'last resort' role in the provision of access to communications and should only be adopted to extend coverage to very remote or high cost areas, where it is not commercially viable to build networks without subsidies.
- The US\$4.4 billion that has been accrued by universal service funds and has not yet been disbursed should be invested in mobile coverage rollout. This should be complemented by the reduction of other barriers to mobile usage, such as consumer tax, as a matter of priority. Such activity will not only increase network coverage but also boost penetration and usage.
- Universal service funds should only be used as a short to medium term policy tool, and should be phased out over time. There is no justification to continue using this funding mechanism in markets where universal service goals have been achieved, either through market provision or through government subsidies.⁸
- Universal service funds should be spent on the lowest cost access technology, typically mobile networks, which have been demonstrated to be the most efficient way to extend access to telecommunications.⁹
- Governments should make public their policies towards universal access, ensure transparency of their accounts, and review progress regularly.

Universal Service Fund Operator Levies



⁸ The USA, for example, levies 10.5% of interstate end user revenues and amassed US\$31 billion between 1999–2004. Mobile operators contributed 53% or US\$16.4 billion but only received 2.6% or US\$800 million.

⁹ 'By their very nature, mobile networks are far easier, faster and cheaper to deploy than fixed-line networks,' The Economist. September 23rd–29th 2006.



Executive Summary

Conclusions

- The mobile industry has already removed many of the barriers, both monetary and non-monetary, to providing accessible communications.
- The priority for governments is to continue to encourage the industry to deliver commercial solutions that will achieve universal access and service goals on a sustainable basis.
- To date, universal service funds have taken substantially more money out of the industry than they have put back in, generally failing to achieve their objectives.
- Policy makers should consider universal service funds only as a last resort, when a relatively mature market has failed to provide widespread access to telecommunications services.

Reaching More Than 90% of the Population

- Mobile coverage will extend to more than 90% of the global population by 2010 on a commercially viable basis. There will remain, however, some areas that will never be economically feasible to serve. In most countries this will be the last 2–5% of the population, which corresponds to 20–30% of the geographic area.
- The study shows that mobile is the only viable solution to provide universal access and universal services. If the unspent and future universal service levies are allocated to mobile operators, it will be possible to reach close to 100% population coverage via mobile networks.

Increasing Penetration is the Priority

- Governments should focus their policies on connecting the 2.7 billion people who already live in areas covered by mobile networks, but don't currently use mobile services. By removing sales and customs taxes on mobile handsets and services, for example, governments could boost affordability for the poorest members of society and mobile penetration by as much as 20% in areas which already have network coverage.¹⁰
- Earlier studies¹¹ have shown that a 10% increase in mobile penetration can increase the annual economic growth rate of a developing country by 0.6%. Governments should prioritise their policy objectives to realise these gains, along with a focused programme of extending geographic coverage to sparsely populated areas.

¹⁰ Tax and the Digital Divide, GSM Association 2005 (www.gsmworld.com/tax)

¹¹ Waverman, et al 2005.

Executive Summary

Case Study: Uganda

With 96% population coverage achieved via mobile networks, in challenging economic conditions, the Uganda Communications Commission (UCC) has demonstrated how a least cost subsidy auction strategy¹² can stimulate network rollout.

Uganda is one of the few countries where a co-ordinated universal access policy and universal service fund have had a significant, positive impact, delivering accessible voice and data services countrywide. The policy, developed in 2000, in collaboration with the mobile industry, required the two main operators to declare which rural sub-counties they could or could not serve, and relinquish their exclusivity rights in areas they did not intend to serve.

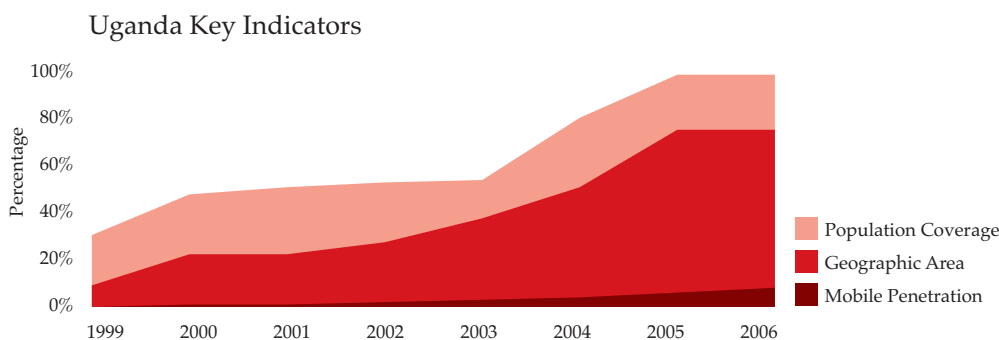
UCC made available to operators a demand study for communication services in rural areas, which comprise 88% of the population. 154 non-exclusive sub-counties were identified and least cost subsidy tenders were won by MTN Uganda, a member of the South African group, in 2005 and 2006. Along with its regular portfolio of services, MTN also established more than 4000 shared access village phones in those previously un-served areas.

The reasons why mobile has been able to provide universal access in Uganda include:

- the introduction of competition using technology neutral licensing in 1998, prior to the privatisation of the incumbent operators;
- the presence of a trusted, independent regulator, which created a stable and competitive environment;
- 100% of the universal service fund allocated to mobile communications;
- the fund's focus being primarily on reaching the last remaining geographical areas, boosting national access to data communications; and
- the requirement for operators to nominate the sub-counties they would not serve, enabling the government to then issue tenders to serve these areas with subsidies from the universal service fund.

Despite Uganda being in the top-tier of countries that have a high proportion of their population covered by mobile networks, it has a penetration level of only 7%. This can be largely attributed to the punitive tax burden on mobile consumers, amounting to more than 30% of the total cost of ownership,¹³ which is the highest in Africa.

Uganda's priority must now be to lower taxes, so that the 25 million people who have access to mobile networks can afford to connect, use and benefit from them.



¹² A least cost subsidy auction is a tender where the winning bid calls for the lowest subsidy.

¹³ 'Tax and the Digital Divide'



Executive Summary

Case Study: India

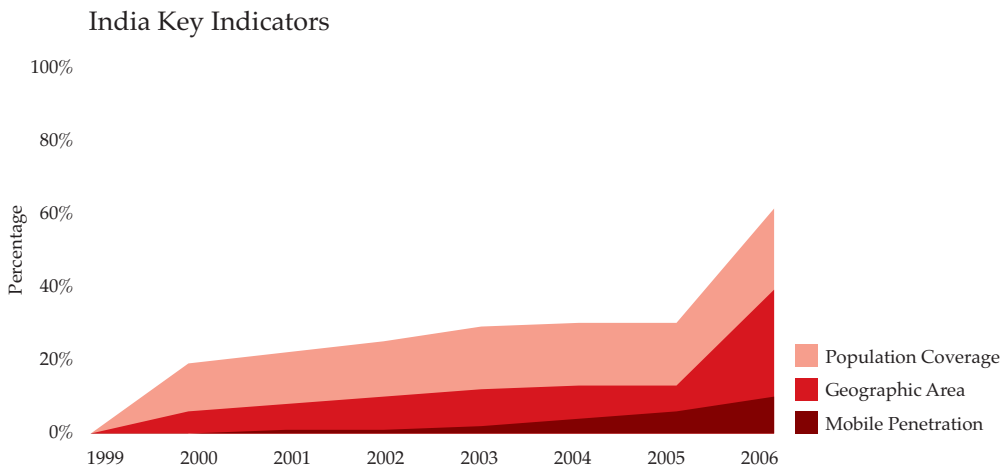
India's universal service fund collects an average of 5% from mobile operators' gross revenues each year, but the majority of mobile operators are excluded from receiving any of the funds. Most of the fund disbursements are allocated to the incumbent, BSNL.

Since 2002, India's universal service fund has collected around US\$3 billion and has allocated less than 29% of the monies. The amount retained to date is close to US\$2 billion and is predicted to rise still further. The mobile industry is being deprived of resources that it could otherwise use to invest in network rollout and meet universal service objectives.

Despite this, India's mobile network coverage doubled last year to reach over 60% of the population. A raft of changes to the regulatory environment supported this expansion. The introduction of a 'calling party pays' regime in 2003, for example, has had a significant impact on network rollout and service take-up, as has the further liberalisation of the sector. India now has six to eight major mobile operators in all services areas.¹⁴

India has a mobile penetration rate of 11%, and this is growing rapidly as operators provide more affordable services. India's average pre-paid ARPU is US\$ 5.¹⁵

The mobile sector has been held back by some of the world's highest taxes, such as 5–10% licence fees and 2–6% spectrum fees levied on operators' adjusted gross revenues. Mobile operators also pay an access deficit charge of 1.5%, which is equivalent to approximately US\$750 million annually. This fee is re-distributed to the fixed-line incumbent. India is an intensely competitive market; per minute call charges are among the lowest in the world. High duties and regulatory charges, combined with low prices means mobile operators have low free cash flows, which holds back further expansion in rural areas.



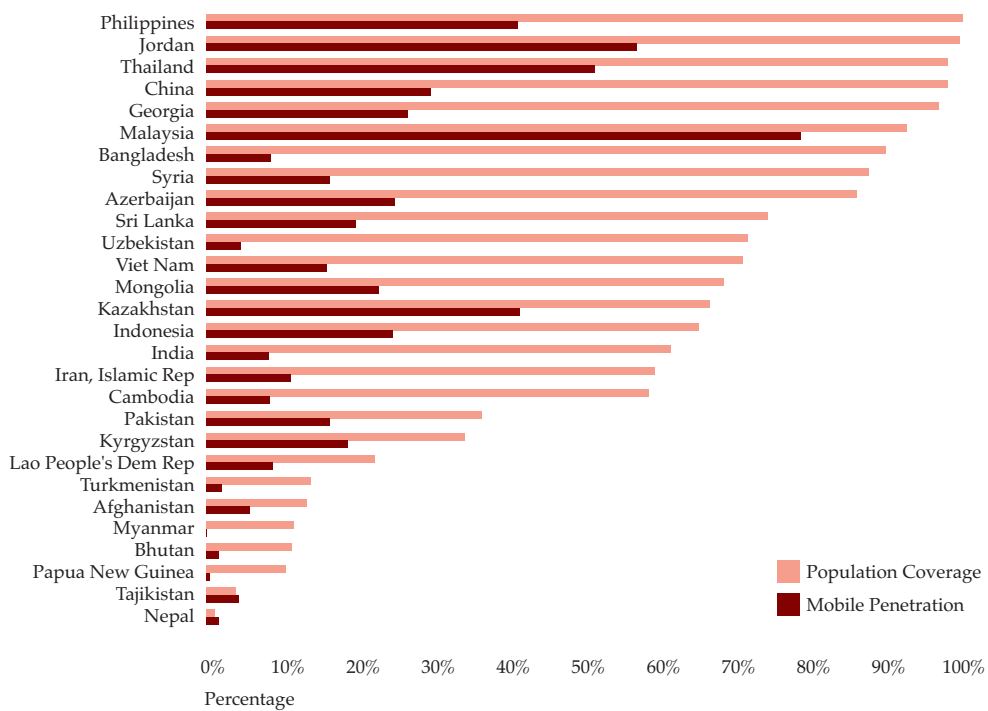
¹⁴ The average number of operators per service area is six, there are only two states, viz. Punjab & Rajasthan, which have eight operators.

¹⁵ As per the private GSM benchmarking study for December 2005, the average prepaid ARPU for the private GSM industry was Rs. 218, i.e. US\$ 4.66 per subscriber per month.

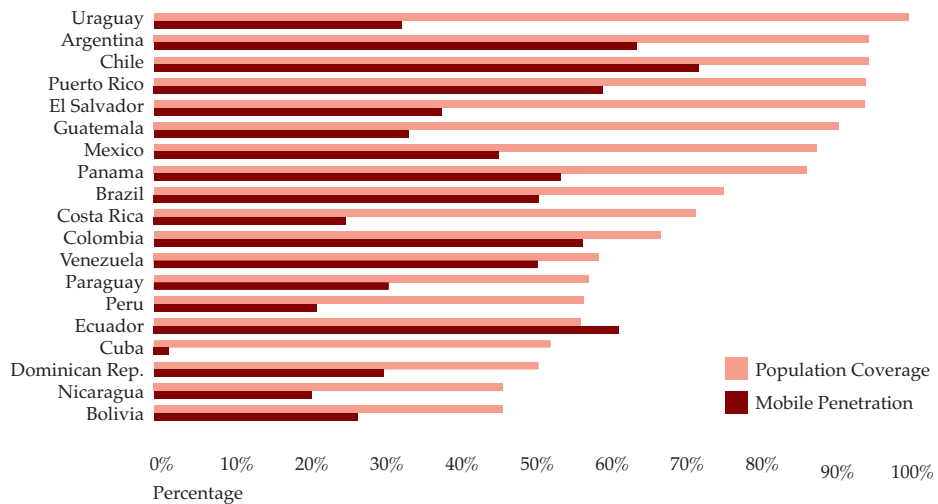
Executive Summary

Mobile Population and Penetration Coverage

Sample Countries — Asia



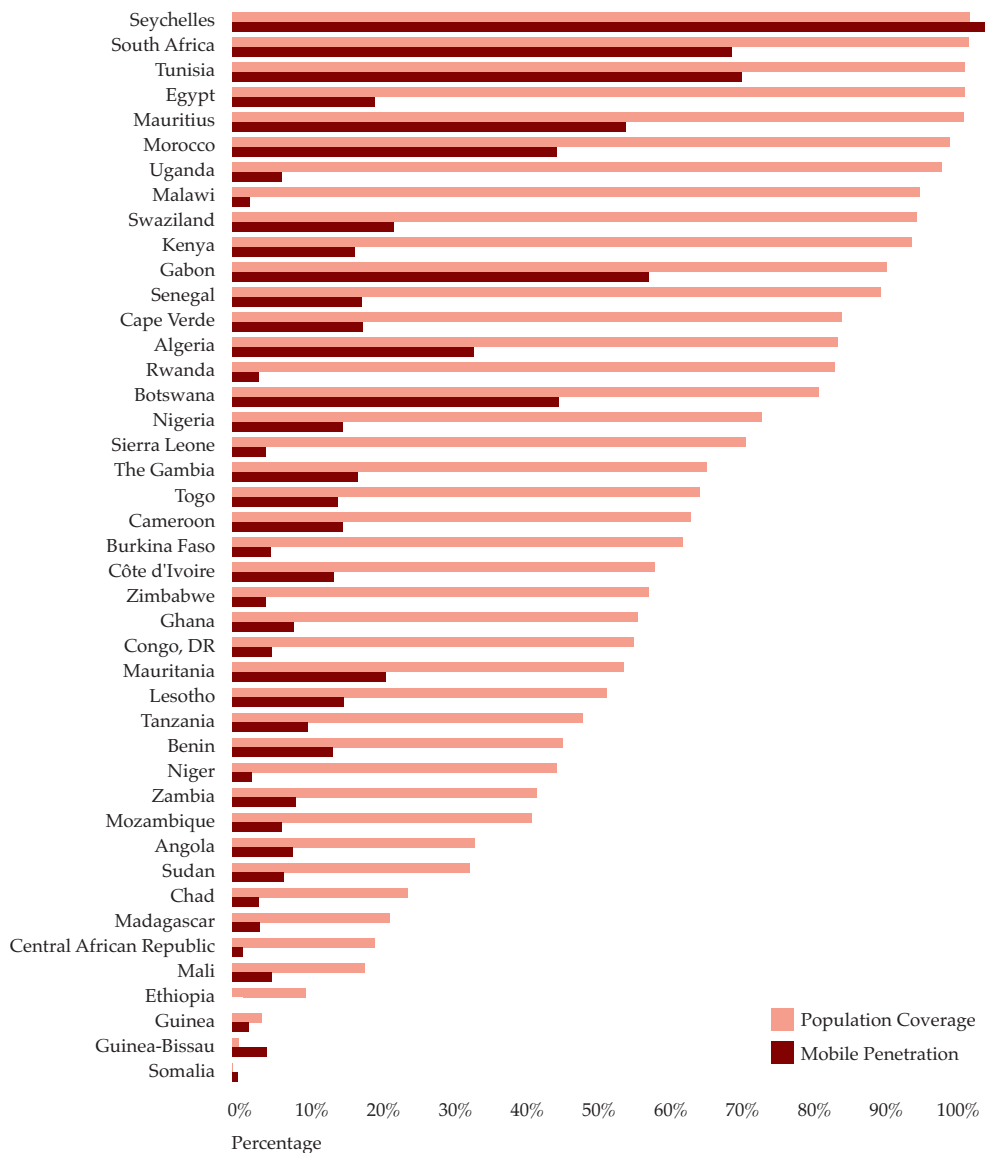
Sample Countries — Latin America





Executive Summary

Sample Countries — Africa



Executive Summary



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Acknowledgments



This report from the GSMA is the latest in a series of research aimed at informing policy issues related to bridging the digital divide. The Association is committed to influencing policy to help lower the cost of access to mobile communications in an effort to bring voice, data and Internet services to more people globally.

The GSMA would like to thank the sponsors of this report, who include Celtel, Cellular Operator Association of India, Ericsson, MTN, Nokia, Smart and Telenor. The Association would also like to thank Intelcon for conducting the study.

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Intelcon is a multi-disciplinary telecommunications consulting firm focused on emerging markets and developing countries. The company combines strategic, economic, business and technological expertise with in-depth policy and regulatory knowledge. Intelcon's global experience spans over 50 countries on every continent.

At the forefront of the rural telecommunications sector, Intelcon is a world leader promoting the implementation of commercially viable strategies and applications for mobile telephony and wireless communications in emerging markets as a powerful tool and catalyst supporting economic development and growth. The company has been directly involved in the design and implementation of Universal Access strategies in Africa, Asia, Eastern Europe and Latin America. Mobile and wireless technologies have been incorporated into innovative public access models for voice and Internet services worldwide. In Uganda, Nigeria, Mongolia and elsewhere, the company has also contributed to the design and evolution of village phone operations and business models.

Intelcon's clients include operators, manufacturers, financial institutions, regulators and governments. The company's aims reflect its clients' distinct objectives: to assess market potential and promote the successful operation of commercial networks and services, and to implement reform and liberalisation of telecom policy, regulation and markets. Intelcon's clients are provided with valuable insights and advice, supported by detailed financial modelling and toolkits tailored to meet individual needs, as well as a global network of local associates.

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