

A Structured Approach for Bringing Mobile Telecommunications to the World's Poor

Jamie Anderson
European School of Management and Technology
Berlin, Germany
anderson@esmt.org
Tel: +49 30 21231 1063
Facsimile: +49 30 21231 9

Why haven't mobile network operators seized the opportunity at the base of the economic pyramid? The explanations are well known; non-existent distribution channels, illiteracy, poverty, and sometimes even war or violent insurgencies can stifle the enthusiasm of companies in serving people living in poverty. Indeed, most MNOs have elected to ignore these consumer segments, and focus on the 'low hanging fruit – customers in the middle and upper income brackets. But while the vast majority of mobile operators have seen these challenges as insurmountable barriers, other have quietly pursued strategies of experimentation in developing unique product and service propositions for some of the world's most needy consumers. At the heart of these success stories has been the development of an approach that delivers a structured approach to serving the world's poor: the 4As – availability, affordability, awareness and acceptability.

Mobile innovation at the Base of the Pyramid

A recent study by London Business School found that, in a typical developing country, a rise of ten mobile phones per 100 people boosts GDP growth by 0.6 percentage points¹. There are approximately four billion consumers at the very 'base of the economic pyramid' (BOP), with per capita incomes of less than \$1,500. Of those, more than a billion people - roughly one-sixth of the world's population - have a per capita income of less than \$1 per day. The 20 biggest emerging economies include more than 700 million such households, with a total annual income estimated at some \$1.7 trillion². But the success of mobile network operators (MNOs) in penetrating these low-income customers has been patchy at best. Despite the World Bank estimating that already 75% of the world's population are within coverage of mobile networks, most companies choose to focus on the middle and upper income segments of the developing world.

Why haven't MNOs seized the opportunity at the base of the economic pyramid? The explanations are well known; non-existent distribution channels, illiteracy, poverty, and sometimes even war or violent insurgencies can stifle the enthusiasm of companies in serving people living in poverty. Underlying these reasons is an assumption that the poor cannot be for a profitable and attractive market segment. Indeed, most MNOs have elected to ignore these consumer segments and focus on the 'low hanging fruit - customers in the middle and upper income brackets. But while the vast majority of mobile operators have seen these challenges as insurmountable barriers, other have quietly pursued strategies of experimentation in developing unique product and service propositions for some of the world's most needy consumers. At the heart of these success stories has been the development of an approach that delivers the 4As - availability, affordability, awareness and acceptability³.

One of the biggest challenges of serving BOP markets is to ensure **availability** of mobile products and services throughout the country, not just in cities. Unlike in the developed world, distribution channels in BOP markets can be fragmented or non-existent and the task of simply getting products to people can be a major hurdle to overcome. Consider the challenge facing MNOs wishing to target low-income consumers in India's 627,000 villages, which are spread over 3.2 million square kilometers. In many parts of the country roads are little more than rutted dirt tracks, and in the monsoon season these can be literally washed away. In the north, roads to isolated villages cut across snow-covered mountain passes that can be closed for weeks at a time. The time to cover even small distances under such conditions can be long, stretching supply chains and adding cost. So while there might be a BOP market of more than 700 million Indians, delivering mobile telecommunications services to them is not easy.

Hexacom India Limited is a joint venture between three telecom companies, one of which Shyam Telecom is the licensee to provide basic services in Rajasthan. Hexacom operates its services with the brand name "Oasis Cellular" and are operational in 42 cities, covering a population of over 10 million. Hexacom is one of the few profitable operators in India, and this due in large part to its innovative ability to reach out to rural users.

About 90% of rural sales come from general retail stores, and every household has one typically within a 500-meter range. However, they also partner with the postal department, to make pre-paid cards available via post offices, and recharge coupons are even delivered to people's door steps on demand. This facility is especially useful for senior citizens and housewives. Postmen can also act as private entrepreneurs and carry mobile phones while on their delivery routes, for postal customers to use from their homes at a charge. Hexacom also supports ticket collectors

¹ Vodafone policy paper: The Impact of Telecoms on Economic Growth in Developing Countries, Waverman, Meschi & Fuss http://www.vodafone.com/assets/files/en/AIMP_09032005.pdf

² C K Prahalad and Allan Hammond (2002), 'Serving the World's Poor, Profitably', *Harvard Business Review*, September.

³ Prahalad and Hammond's 2004 article 'Serving the Poor Profitably' provided a broader discussion of the opportunities and challenges in serving low-income customers in developing customer. See C K Prahalad and Allan Hammond (2004), 'Selling to the Poor', *Foreign Policy*, May/June. In 2002, C.K. Prahalad and Stuart L. Hart discussed the assumptions preventing companies from pursuing opportunities in BOP markets, and suggested that MNCs must build organizational infrastructure to address opportunity at the bottom of the pyramid. See C.K. Prahalad and Stuart L. Hart (2002), 'The Fortune at the Bottom of the Pyramid', *Strategy and Business*, Issue 26.

³ Other researchers have also pointed to the importance of some of these dimensions in reaching low-income customers. C K Prahalad touches upon availability, affordability and acceptability as important factors in reaching BOP customers in C K Prahalad (2005), *The Fortune at the Bottom of the Pyramid: Eradicating Poverty Through Profits*, Wharton School Publishing. Jagdish Sheth, Charles H. Kellstadt Professor of Marketing at Emory University, referred to similar dimensions in his presentation 'Marketing paradigms for Emerging Economies' at the IIM Marketing Conference, India, January 2005. Sheth and co-author Rajendra Sisodia also developed a marketing framework with aspects similar to our own 4As framework, but in the context of developed rather than developing markets. See Jagdish N. Sheth and Rajendra S. Sisodia (2002), 'The 4As: Operationalising Customer Centric Marketing', Gouizeta Business School Working Paper (unpublished), July. The authors would like to thank Professors Prahalad and Sheth for reviewing and commenting upon earlier drafts of this article.

carrying phones on air-conditioned buses such as on the 260km Delhi-Jaipur route. Hexacom provides a sticker for the buses, indicating that the vehicle has a mobile phone on board.

In the Philippines, Smart Communications Inc. recognized that availability was perhaps one of the biggest barriers to providing mobile telecommunications to BOP consumers. More than 65% of the Philippines' population lives in rural areas, and the country is comprised of more than 7,000 islands. While Smart had network coverage for 75% of the population by early 2003, the 50,000 resellers of its pre-paid cards were predominantly medium sized storeowners and dedicated mobile resellers in towns and cities, and the company had very limited penetration of the small 'Sari-Sari' (Sari-Sari means varied in Tagalog) stores in non-urban areas. The company recognized that providing such stores in isolated rural areas with pre-paid cards would make supply chain management costly and difficult. Many analysts claimed that it simply could not be done profitably.

About the research. This article derives from research on serving customers at the bottom of the economic pyramid with mobile telecommunications services. The research has used an action-based methodology, founded on enquiry, analysis and testing. It has aimed to articulate best practices as companies deal with the challenges of serving low-income customers in developing markets, and in many respects has explored strategies that are still evolving. A two-year research project was undertaken to test the hypothesis that there were common challenges and approaches in serving BOP customers, and that these could be articulated and refined to get better business results. Field visits were made to China, India, Africa and the Philippines, and in depth interviews took place with companies that had succeeded in serving customers living in poverty. Companies were identified from the existing body of literature, observation and personal contact. Additionally, data was collected from developing case studies on firms that have been successful in serving low-income customers in developing markets. From the academic literature, field visits, the research and writing of case studies and hands on experience with managers, the 4As framework was refined during 2004-2005 in a reiterative process of application, testing and adaptation. Then, through feedback from our academic colleagues (the authors would especially like to thank C K Prahalad for reviewing and commenting upon an earlier draft of this article), classroom discussions and further interviews with executives involved in the application at companies, shared approaches to the 4As were identified and used to build theory and make the concepts generic enough so they could be utilized by other managers within the mobile telecommunications industry

To overcome the complexity of distributing pre-paid cards, Smart developed an innovative over-the-air (OTA) payment system. Called Smart Load, the new technology allowed a retailer to load a customer's airtime from a specially designed, retailer SIM (the small electronic network access card inside the retailer's mobile handset) - all electronically. With the launch of Smart Load, Smart minimized physical product distribution costs by creating a demand response stocking system for pre-paid airtime. Product distribution became faster, more efficient, and more secure. The special retailer SIMs allowed retailers to "open" or "close" their retail handsets via SMS and enabled them to sell their service outside a physical location, and outside regular store hours. The ability to reload electronically meant consumers could purchase airtime even in remote rural locations. Retailers did not have to obtain stock and sell pre-paid cards. The Smart Load service eventually allowed Smart to eliminate the distribution of lower denomination re-load cards altogether. This benefits of this approach are clear - replacing paper vouchers with text messages operators can reduce the cost of the prepaid process by up to 70%.

Further improving availability, Smart minimized the start-up costs of becoming a retailer. A prospective merchant only needed a bank account, a GSM handset, a retailer SIM card, costing P100 (US\$1.79), and an initial load balance of just P300 (US\$5.37). With such low capital requirements several hundred thousand retailers were attracted as Smart partners in a few months, allowing the company to build an extensive retail footprint. In turn, these retailers reached a broader market area since sales could take place electronically, eliminating any need for consumers to travel to a retailer. The network of retailers thus grew from 50,000 outlets at launch to over 400,000 retail agents, approximately 80% of whom are micro businesses, such as neighborhood stores, housewives and students acting as roving agents.

Vodacom of South Africa created the Community Services Phones Franchise concept to improve service availability to previously disadvantaged communities such as townships and rural areas. The franchise arrangement allows anyone over the age of 21 with a valid South African ID to apply to be a Community Services Telephone operator. The start up capital requirement for the business is relatively low - the main cost being an investment in five phones. Vodacom provides a reconditioned shipping crate which functions as the business premises and is strategically positioned in an underserved area. The company looks for sites that are in densely populated, disadvantaged communities, with a high profile position and good transport connections and have access to electricity. Vodacom then lays out a simple, transparent pricing model providing healthy margins for the operator and meeting the

communication needs of otherwise underserved communities. By mid 2004 Vodacom had deployed 25 000 active community service telephones in underdeveloped areas run by 1800 entrepreneurs that record 80-million call minutes a month.

The second hurdle to overcome in serving BOP consumers is to ensure that products or services on offer are **affordable**. BOP consumers have low disposable incomes, and products may also need to match the cash-flows of customers who frequently receive their income on a daily rather than weekly or monthly basis. Two-thirds of Indian villagers are in the bottom income band making them acutely sensitive to price, and more than two-thirds of their income is typically spent on food. Other products such as soaps, scents, shampoos and even telecommunications services must be purchased with the meager income that is left over.

With close to 50 percent of the population in the Philippines living below the poverty line, affordability of mobile telecommunications was a major issue. Socioeconomic breakdown in the Philippines falls into five categories A, B, C, D and E. The A, B and C segments are upper, upper middle and lower middle income families, while the D and E segments are lower income and below the poverty line groups. Smart discovered that while P100 (the lowest price for a prepaid card in 2002) was not a lot of money for a consumer from the A or B segments, this amount represented a significant cash outlay for a family living in poverty. Indeed, one hundred pesos represented more than 80% of daily income for over half of the families in the country. Quite simply, said the analysts, a very large segment of the population would be unable to afford mobile telephony, and mobile penetration was likely to peak at no more than 30% of the population by 2008.

To develop propositions to reach the low end of the market, and particularly consumers in the D and E segments, Smart recognized that it could not benchmark others in the mobile industry, as there were very few cases of mobile network operators who had successfully developed propositions for very low income consumers. Instead, the company looked at companies that already served this segment with other products and services, and undertook its own market research on consumer buying behavior.

When Smart looked to companies such as Procter & Gamble and Unilever that served the D and E segments with fast moving consumer goods they discovered that these firms had developed low-priced micro-packs for daily necessities such as shampoo, soaps, cigarettes and food. While these 'sachets' did not represent the most economical way of purchasing goods, they met the needs of consumers in terms of low purchase price. The vast majority of these items were sold through the country's Sari-Sari stores that survived on high turnover low value transactions. Indeed, "tingi-tingi" or "purchasing goods in small amounts" was part of daily life. Customer surveys revealed that low-income Filipinos made an average of four to five trips a week to their local Sari-Sari store.

To reach its BOP consumers, Smart Communications built on its OTA technology and developed prepaid pricing plans that offered airtime in sachet-like packages, with prices that were broken down into much smaller denominations than had previously been available – as low as P30 (US\$0.54). The new pricing packages were a huge success, and within ten months these lower denomination packages were generating 3 million daily top-ups, with revenues of more than \$2 million a day. Smart subsequently launched Pasa (transfer) Load, making re-loads even more accessible for low-income customers. The new service allowed consumers to transfer loads as low as P10 (US\$ 0.18), from one account to another. By January 2004, denominations of P2 (US\$0.03), P5 (US\$0.08), and P 15 (US\$0.27) were added to the Pasa Load lineup.

While Smart offered sachet pricing, the profits margins on these sachets matched or exceeded those that had been made on pre-paid cards – as is the case for sachet products in much of the FMCG world. The result – as of end 2004 Smart had amongst the highest EBITDA margins (63.7%) of any network operator in the Asia-Pacific region, despite having amongst the lowest average revenues per user (ARPU).

While Smart innovated its pricing model, GrameenPhone innovated the ownership model to meet the needs for affordability. Their Village Phone programme was integrated with the microcredit services of Grameen Bank so that female entrepreneurs could take out loans to buy a phone. The loan usually is for BDT 12,000 (appx. €150) and pays for a handset, the subscription and incidental expenses. This turns an entire community into the customer, and means that the average revenue per user of Village Phone subscribers is double that of the average GrameenPhone business user. As of August 2005 there were more than 165,000 entrepreneur subscribers, providing telecommunications services to more than 60 million people in the rural areas of Bangladesh. GrameenPhone reports that the mobile phone market has more than doubled in the past 18 months, growing from 1.5 million subscribers in early 2004 to 4.2 million at the end of February 2005.

With many BOP customers largely inaccessible to conventional advertising media — for example in India only 41 per cent of poor rural households have access to TV — building **awareness** is another challenge for companies wishing to serve low-income consumers in the developing world. To overcome these constraints, Smart invested heavily in billboards along roads, in urban areas and in rural communities, and also developed point of sales marketing materials tailored specifically for Sari-Sari stores. The company also developed advertisements suitable for attachment to Jeeps (the most pervasive form of public transport in the Philippines) and three-wheeler taxis.

Smart also worked closely to train its seven largest national dealers, who in turn trained sub-dealers and others in the distribution channel such as Sari-Sari storeowners, students and housewives who could also become resellers. A key element of this process was winning support for the system from these seven dealers through a series of workshops. Smart agents also visited colleges and universities to promote Smart Load, hosting seminars on how to enroll as a Smart retailer and typical commission and mark-up structures. In return for universities allowing agents on to their campuses, Smart provided sponsorship of school activities and events. Similar seminars were held in low-income suburbs of urban areas, rural communities and villages to enroll Smart retailers. Smart admits that the most powerful tool for building awareness of Smart Load came from these micro-entrepreneurs who marketed OTA reloads directly to friends, family and members of their local communities.

Engaging existing formal and informal community networks is an approach that has been successfully adopted by many innovative mobile providers. Hexacom in Rajasthan, recognizing that women tended to be under represented as users of its services, sponsored a series of local festivals that were specifically targeted at women and young people. The most explicit recognition of the important role played by women in village life is the GrameenPhone system, which has had a big impact is on the lives of women. Known as 'GrameenPhone Ladies', women entrepreneurs receive microcredit to purchase phones and then manage their use among the village. The women provide villagers with a vital link to services in a country that is traditionally very poorly served by telecommunications. Viral marketing is one of the most effective forms of advertising, and employed with good effect in this system. As one of the keys to raising awareness, these women clearly play a key role.

Last, and perhaps most important, is the **acceptability** of the product and services to the market in question. BoP markets have unique characteristics and often differ markedly from other markets. Two important dimensions must be considered when determining likely acceptability of mobile services: use cases and business models

First, products in BoP markets often have very different *use cases*. While 'content is king' in the minds of many MNOs operating in industrialized markets, in the Base of the Pyramid communication and connectivity is the primary driver. Access to mobile telephony can help make people's lives easier and allow them to save money, by reducing the need for travel to adjacent villages or towns to search for work or to check market prices for their agricultural produce. The cost of a text message to an employer in an adjacent village to check for work availability could be as little as one-tenth the cost of traveling to that village by public transport. The tangible impact of basic connectivity for these workers' livelihoods is striking. The role of communications is clearly different in these is a valuable necessity for even the very poorest members of society.

MTN Uganda worked with the NGO FoodNet to carry out a valuable service to maintain and update a database of commodity prices, which it would download to MTN users who request them by SMS. This was needed because of a large discrepancy in commodity prices between one side of the country and another, and even in neighboring market towns, which afforded middlemen an opportunity to exploit farmers. FoodNet collects wholesale and retail price information for about 25 agricultural and livestock products, ranging from sesame seeds to goats. The price information, in shillings per kg., are disseminated through local newspapers; price bulletins over local language radio stations and email. Users of the service would just text in a key word for the crop they wanted to know the price of, and the data would be sent to them automatically.

BoP markets often require very different *business models*. For the end user, the key issues are the use of pre versus post pay contracts and the related issue of handset prices. The introduction of pre-pay cards has probably been the single biggest factor driving the uptake of mobile telecommunications in BoP markets. In 2004 the number of subscribers using pre-paid cards passed the 1 billion mark. Necessary conditions that are taken for granted in developed market economies - a well-functioning postal system with street addresses, consumer credit as well as bank accounts and an efficient infrastructure - are often absent, or only available in certain areas. As such pre-pay systems are the most popular solution - in India for example about 90% of all new connections are now pre-paid, whereas 10% are post-paid, and this is despite an approximate 35% price advantage for post-paid contracts. The

question of higher value added services that require identity management (difficult with current pre-pay systems) become central for MNOs.

Without post-pay contracts, subsidised handsets are generally not available. The high-cost of unsubsidized mobile handsets has been one of the major barriers for consumers in the use of mobile telephony. This is exacerbated by import duties – in India, for instance, these remain at between 30 and 35 per cent, although handset prices from manufacturers continue to fall. The lowest cost of a mobile phone in 1984 was \$1800, and in 2004 it was just \$100. But this is still a large amount for many BOP consumers, and MNOs have had to consider alternative approaches. Since 2001, a major development in the Philippines market has been growth of used handset imports, with thousands of devices being imported from more developed markets and handsets are now available at US\$35 to US\$40, drastically decreasing barriers to ownership. This aspect is closely aligned with the affordability dimensions mentioned above, but also increases acceptability by reducing the perception of mobile usage as a luxury for the rich.

Business models for the distribution channel are also very different. Smart recognized that one of the major barriers for penetration of pre-pay cards was the reluctance of the Sari-Sari stores to stock the cards due to the inventory costs and security concerns. These issues were largely dealt with by Smart's introduction of OTA technology and sachet-based pricing. The user-friendly SMS distribution interface could be sold in a way complementary to the current sari-sari business practices. In some cases merchants extended their existing on-credit purchasing model already used for staples and sachets to Smart Load. End retailers received a 15% mark-up on sales, and many indicated that they could make as much or more revenue selling OTA minutes as they could from other consumer goods sales. According to Smart, some retailers earned up to P1000 (US\$18.00) per day in re-Load sales, and the company's electronic distribution network spurred thousands of entrepreneurs to become resellers. Smart estimated that, of the more than 500,000 retailers at end 2004, approximately 90% of which were micro businesses.

In Uganda, Mobile Network Operator Celtel was confronted by the challenge of a limited national power grid, providing real difficulties in recharging mobile phones in more isolated rural communities. This lack of electrical power reduced the acceptability of mobile telephony amongst both end consumers and potential distributors. To overcome this problem Celtel worked to provide low-cost power generators for selected retailers, who would then recharge consumers' phones for a small fee.

Up until now, MNOs have lacked a comprehensive framework for profitably addressing BOP consumers in developing countries. The underlying assumption of much current thinking is that those in the very poorest segments of society are simply too poor to become consumers of telecommunications services. In fact several studies show those in extreme poverty are in fact eager consumers of these services, yet often pay over the odds, and take up a far higher proportion of their income on basic communications than others in developed markets. Yet, as we have shown, by leveraging the 4As – acceptability, availability, affordability and awareness – mobile network operators can achieve growth and profit, two elusive goals in many developed markets.

The strongest growth in the mobile industry is now coming from BoP markets. The pioneering successes of companies such as Grameen Telecom and Vodacom are well documented, and in early 2005 Philippine Long Distance Telephone Company (PLDT), Smart Communicatoin's parent organization, revealed a net profit of PHP 28.04 billion (USD 512 million) for the full year 2004, up from PHP 2.12 billion (USD 38 million) the previous year. The record results beat market expectations, thanks in the main to explosive growth in revenues coming from Smart's new customers in the D & E segments, and PLDT had the largest market capitalization among Philippine listed companies. Mobile penetration reached 30 percent at the end of 2004, is expected to reach 40 percent by end 2005, and some industry observers now predict penetration rates of 70 percent or more by 2008. Embedded in the economic success story, delivering the 4As has also enabled MNOs in developing countries to provide significant social good. Low income consumers have benefited from access to life-enhancing telecommunications services uniquely tailored to meet their needs, and at a lower cost than in the past.

References

- Anderson, J., Vedpuriswar A. V. and Khan, A. (2005), *Smart Communications Inc.*, Case A and Case B, European School of Management and Technology Case Study 2005003.
- Balakrishna, P. and Sidharth, B. 'Selling in Rural India', *The Hindu Business Line*, February 2004.
- Balu, R. (2001) 'Strategic Innovation: Hindustan Lever Ltd', *Fast Company*, Issue 47, June.
- Franklin, J. (2003) 'Paddling for profits: despite hard times, Avon's huge, mostly female workforce is on the move in Latin America', *Latin Trade*, December.
- Gorman, M., Werhane, P. and Mead, J. (2004), *Hindustan Lever Limited and Project Sting*, Darden Business Publishing Case Study.
- Prahalad, C. K. and Hammond, A (2002), 'Serving the World's Poor, Profitably', *Harvard Business Review*, September.
- Prahalad, C. K. and Hammond, A (2004), 'Selling to the Poor', *Foreign Policy*, May/June. In
- Prahalad, C. K and Hart, S. L (2002), 'The Fortune at the Bottom of the Pyramid', *Strategy and Business*, Issue 26.
- Prahalad, C. K. (2005), *The Fortune at the Bottom of the Pyramid: Eradicating Poverty Through Profits*, Wharton School Publishing.
- Radhika, N. (2004), *Changing trends in retailing and FMCG industry in India*, ICFAI Centre for Management research Case Study.
- Sharp Paine, L. and Crawford, R. J. (1998), *The Haier Group A*, Harvard Business School Publishing, Harvard Business School Case 398101
- Sheth, J. N. (2005) 'Marketing paradigms for Emerging Economies' presentation at the IIM Marketing Conference, Mumbai, January.
- Sheth, J. N. and Sisodia, R. S. (2002) 'The 4As: Operationalising Customer Centric Marketing', *Gouizeta Business School Working Paper* (unpublished), July.
- Stuart Hart, Capitalism at the Crossroads
<http://www.amazon.com/exec/obidos/tg/detail/-/0131439871/103-9984449-9752637?v=glance>
- Economist
http://www.economist.com/business/displayStory.cfm?story_id=4157618
- NY Times, August 4, 2001:
<http://www.nytimes.com/2001/08/04/technology/04PHON.html?ex=1129780800&en=2ec9e66644e3a04d&ei=5070&to=daysheadlines&oref=login>
- Vodafone policy paper: The Impact of Telecoms on Economic Growth in Developing Countries, Waverman, Meschi & Fuss http://www.vodafone.com/assets/files/en/AIMP_09032005.pdf

Exhibit 1 - The 4As Framework

