

expanding horizons

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**Affordability key
in bringing
digital inclusion**

**Brazilian operator Oi:
Segmented market,
converged solutions**

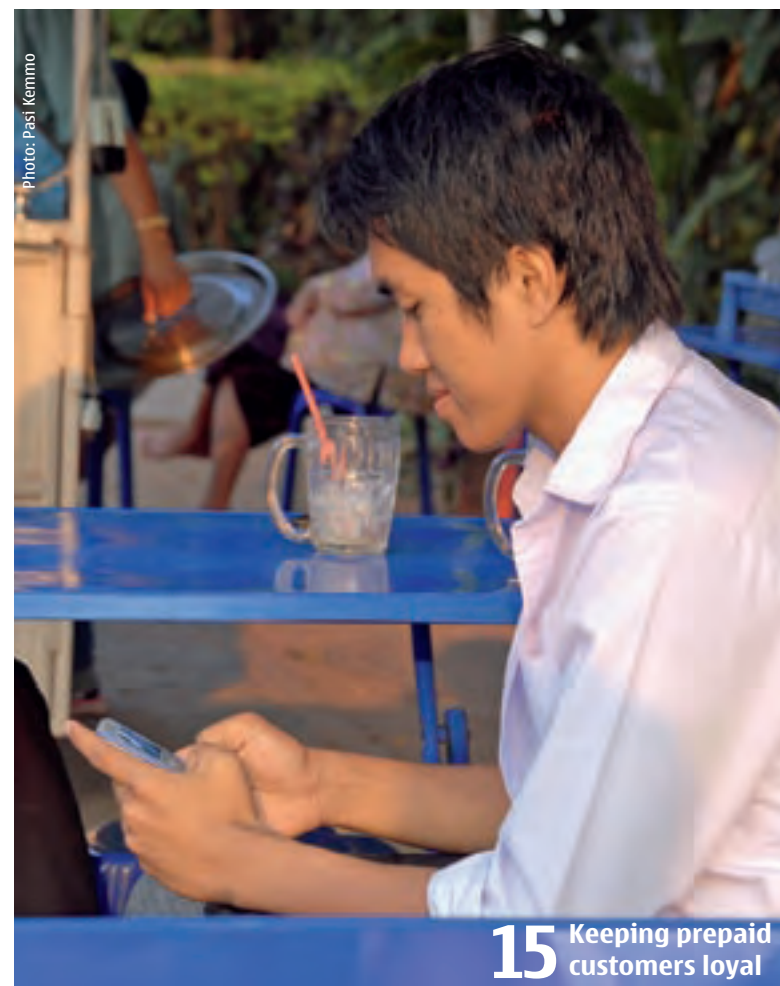
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Realizing the potential of
mobile banking



Published quarterly

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EDITORIAL



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MOBILE PHONES PROVIDE a means of extending financial services to the unbanked – people without bank accounts. Emerging markets, which have the greatest need for enhanced access to financial services, are currently leading the innovation in the field of mobile banking (m-banking). One key factor in the increasing success of m-banking is the spread of mobile phones across all socioeconomic groups and geographical areas.

A number of promising projects are under way, but for m-banking to gain truly significant impact globally, more co-operation and policy coordination would be necessary between financial and telecommunications regulatory environments. The Philippine Central Bank is showing the way with its active approach including new technology platforms that help making m-banking easier. It is also cooperating closely with the country's mobile operators and financial institutions on m-banking. Working together, the key stakeholders (telecom and financial regulators, operators, financial institutions, solution providers and mobile handset manufacturers) can help make m-banking a reality and extend access to financial services to those who need it most.

We also focus on the total cost of ownership (TCO) of mobile communications from the perspective of a lower-income consumer, in an article that reviews the affordability situation across 80 countries. For the majority of lower-income consumers in emerging markets, the monthly total cost of ownership is still far beyond their reach. As mobile devices are expected to become the primary means for accessing data and internet services in most emerging markets, their affordability is key. Governments and the mobile industry need to continue their efforts to reduce the TCO in order to provide lower-income citizens with affordable access to information and communications technologies.

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Expanding Horizons is published quarterly for operators, regulators and government policy-makers who are advancing mobile communications in new growth markets. Presenting best practices from around the world, the magazine shows how to create a favorable environment for market growth.

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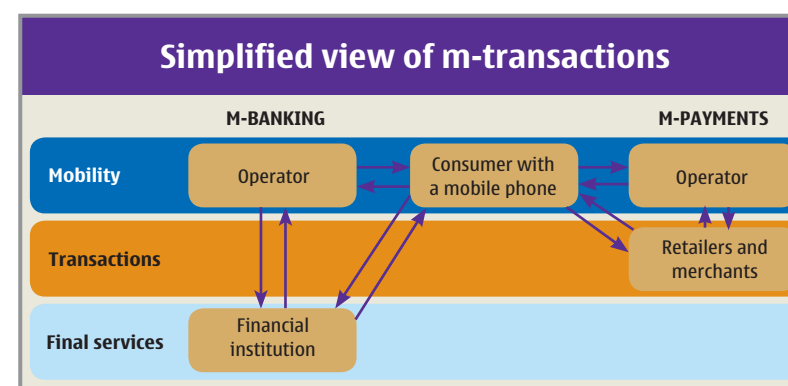
At a glance: Mobile transactions

Financial services are critical for economic development. In order to increase income levels, it is essential to provide access to formal financial services for people without bank accounts. Mobile phones can deliver such services via mobile transactions (m-transactions) – financial transactions made using a mobile phone without visiting a bank. M-transactions can offer an answer to the lack of financial-service access prevalent in many emerging markets.

Provision of financial services through mobile phones offers a low-cost, accessible transaction platform for

currently unbanked lower-income people. For example, lower-income customers can already use their mobile phones to repay their microfinance loans to microfinance institutions. In addition, mobile phones offer the opportunity of bringing payment and remittance services into rural areas, which often lack conventional banking facilities and services.

While the descriptions given below are not all-encompassing, they do provide a framework for understanding m-transactions and especially mobile banking, one of the main topics in this issue of Expanding Horizons. ■



Mobile banking (m-banking) services are provided by financial institutions in cooperation with mobile operators. M-banking is about getting banking services to the "unbanked" – those who do not have bank access or bank accounts, and those who are at the bottom of the economic pyramid, often living in remote areas. They receive the benefits of banking services such as being able to save and borrow in a cost-efficient and secure way.

M-banking services include, but are not limited to:

- Information (account balance retrieval, transaction history)
- Transfers (transfers of money between accounts, including bill payments)
- Cash-in and cash-out services, deposits, withdrawals, remittances

At a later date more sophisticated financial products, such as securities, investments and insurance, are expected to become available through m-banking.

Mobile payments (m-payments) are provided by mobile operators and third parties such as merchants or retailers. Even without a bank account or the participation of a bank, mobile phones can be utilized to accomplish transactions to transfer value.

Services have developed whereby, for instance, prepaid units bought from a mobile operator can be used to pay for goods and services from the partnering service providers.

M-payments in this framework include:

- Usage of prepaid or post-paid accounts for paying for goods and services, utilities, vending machines and so on
- Transferring value between prepaid and post-paid accounts (in general, cash-out services are not a part of m-payments)

Trust and fidelity: from banking under the mattress to resting on the mobile phone

BY: Howard Williams and Maili Torma

Where traditional banking services have proved inadequate, costly and inaccessible in many emerging markets, mobile banking is fast progressing.

Banks impoverish the poor: “They eat your money” is a common expression across the developing world – a comment striking at the heart of the inadequacy, high cost and lack of access to banking services. As a consequence, lower-income people are disenfranchised and most individuals, families and small business do not have bank accounts. The failure of traditional banking means that lower-income households rely on informal means to save their money; typically in cash in their homes, often “under the mattress.”

The structural constraints on the existing banks in providing low-cost services across wide geographic areas have lead to innovative new business models exploiting the transformational impact of mobile telecommunications. Mobile financial transaction platforms are rapidly emerging; such platforms harness the intrinsically lower costs of mobile banking platforms compared to traditional banks and exploit the increasingly wide diffusion of mobile telephones across all socioeconomic groups and geographical areas. Interestingly, the innovation in mobile financial transaction is occurring in the developing world where the need for enhanced access to finance is greatest.

Not only are mobile transactions platforms emerging to provide new forms of access, these platforms are also redefining competition in financial services. The mobile transactional platforms are able to *unbundle* and *rebundle* traditional banking services. Hence competitive advantage is based on new informational and access channels supported by the SMS service plat-

form intrinsic to all mobile networks and services. Good examples of these transformational financial systems include Wizzit in South Africa, Globe in the Philippines and M-PESA in Kenya.

From the consumers’ viewpoint, the success of mobile transactions is based on the ease of use, the low cost of services, 24/7 access in all locations and the high levels of security. All this can dramatically improve users’ quality of life. Money can be sent or received quickly and easily without the hassle of lengthy post office queues. Electricity meters can be topped up at the user’s convenience and funds can be transferred to allow the needy to pay doctors’ fees or purchase medicines.

There are countless examples, all of which point to the imaginative use made of mobile transactions and the intrinsically high level of demand from lower-income families for financial services.

Transformational transactions

However, the benefits of mobile transactions cannot be taken for granted. The transformational benefits can only be derived if the banking and the telecommunication regulatory environments maximize the benefits for consumers. These issues of policy coordination are particularly acute with regard to customer information and access to inter-bank settlement systems. The conventional tests for verifying a customer and checking their credit worthiness are expensive, time consuming and often fail should the individual not have the proper paperwork – something that is common for many lower-income households. Using individual histories created

through the use of mobile phones could be used as a low-cost and immediately accessible source of information – but such information today remains inadmissible due to banking regulations.

The efficiency of payments requires access to the inter-bank clearing systems; thus the terms on which mobile transactional platforms gain access to these bottleneck facilities is critical. In a way, this is a standard interconnection problem and here the lessons and experience from the telecoms sector could usefully inform policy development – for example, to develop policy regimes around access (and the price of access) to bank clearing systems on the basis of mandated access to essential facilities.

Mobile financial transactions can be transformational – they can be a significant tool in alleviating poverty. However, their potential will not just be defined by market based outcomes but through carefully constructed policy regimes – regimes that allow effective competition and synergies to be created between the telecommunications sector and the banking sector. Critically, the policy outcomes must focus on delivering benefits to consumers of both mobile and banking services, rather than focusing on protecting existing banking and telecom service providers. ■

This article is based on a policy paper that is available online at http://www.nokia.com/NOKIA_COM_1/Corporate_Responsibility/Sidebars_new_concept/Transformational_Potential_of_M-Transactions/VOD833_Policy_Paper_Series.pdf. Professor Howard Williams is an associate at the Oxford Internet Institute: howard.williams@oii.ox.ac.uk.

In the Philippines, CGAP is working with Globe Telecom to see how G-Cash, an SMS money transfer solution, is expanded to serve lower-income people in remote areas.



Photo: USAID/Philippines Microenterprise Access to Banking Services (MABS) Program

Enlarging the scale of financial services

We meet Ms. Elizabeth Littlefield, CEO of the Consultative Group to Assist the Poor (CGAP), to discuss ways to provide microfinance and other financial services to lower-income people in emerging markets on a greater scale.

How do you see the microfinance market in emerging markets today, and how could it be stimulated on a greater scale?

CGAP estimates that 100 million households have access to financial services through traditional microfinance institutions. Our research points to anywhere from 750 million to one billion active but low-balance accounts. The only way to reach greater scale is to stimulate all kinds of service providers to compete to serve lower-income people with the wide range of financial services that they need and are willing to pay for. This means building entire local financial markets that meet their diverse financial needs, from transferring funds and borrowing to making deposits in a safe convenient place.

How do new technology-enabled delivery channels, such as mobile phones, change the provision of financial services for lower-income people?

The high costs of making small transactions have been blocking exponential growth of financial services for the lower-income people. Mobile phones offer the possibility of providing services far more cost-effectively than more labor-dependent delivery channels, and hold great promise for making financial services viable to reach much lower income and more remote clients.

Payment systems will develop first and deposits and credit services will follow – it is much simpler to send messages with payment instructions than it is to dispense and store cash.

What are currently the most challenging regulatory issues for microfinance and mobile banking (m-banking) in emerging markets?

Policy-makers and regulators want to use new models to improve financial access in a safe and sound manner. Appropriate legal and regulatory frameworks are needed – there must be a balance between encouraging innovation and protecting the financial system and the client.

Today, the convergence of banking systems, payment systems and telecommunications systems is changing the way people get services. In many countries, mobile operators already have more customers than banks. Should they be allowed to offer financial services? Many models of branchless banking also use local merchants to do deposits and withdrawals in places where it would be unprofitable to build a bank branch. Does banking law allow this kind of outsourcing? These are the questions CGAP is currently working on.

How do you see the role of private sector in developing microfinance and m-banking solutions further?

The private sector is the central player in the future of microfinance and m-banking. Only with a full range of financial services, provided in a commercially viable way by private sector players, will financial systems in emerging markets truly serve the majority of their populations. The key is making sure that all the different players in the field are working together in a way that ultimately increases access to finance in a viable way. ■

In brief: CGAP

The Consultative Group to Assist the Poor (CGAP) is a global research center for microfinance standards, operational tools, training and advisory services. It offers research, policy diagnostics and advisory and funding through a range of partnerships with technology

companies, mobile operators, banks, non-governmental organizations, governments and funders. CGAP’s current technology program explores delivery channels for reaching lower-income, remote clients on a larger scale and in a commercially viable way.

Mobile phones can bring banking within everyone's reach

For millions – perhaps billions – of lower-income people around the world, a mobile phone represents more than just a tool for communication. It can also become a means of extending financial services to people without bank accounts, setting off a “virtuous circle” of benefits to individuals, families, communities and nations. Only active collaboration between financial and telecom regulators, financial institutions, mobile operators and handset manufacturers will make this possible.

Lack of access to banking services is currently forcing many people in emerging markets to rely on an often insecure cash-based economy. Bringing inclusive financial services to the unbanked – people without bank accounts – is a key element in improving living conditions and critical for overall economic development.

Many emerging market governments are seeking to increase access to financial services. As access to mobile phones is very widespread and still growing, it is natural to consider their ability to become a tool for enabling much-needed banking services.

Recent mobile banking (m-banking) programs in Africa and Asia have highlighted the potential for mobile phones to deliver these services. M-banking has been shown to reduce risk and bring convenience in financial transactions, and make it easier and cheaper to extend financial services to lower-income people without a bank account.

M-banking brings clear benefits to the unbanked, allowing them to save, borrow and remit safely, easily and

cost-efficiently. All of this boosts their sense of security and ability to improve their living conditions.

Banks, in turn, are realizing that they can create viable business out of offering services to the lower income groups. Through m-banking, they can cut transaction costs and greatly expand consumers' access to financial services.

Ubiquitous and low-cost

M-banking is still in its formative stages in emerging economies. A number of projects are currently under way in the Philippines, South Africa and elsewhere. Instead of using a physical bank, industry players are using technology to create size and bring down cost.

“The need for mobile banking actually came from microfinance,” says Ms. Lalita Gupte, chairperson of the Board of Directors of ICICI Venture Funds Management Co. Ltd., a private equity company that is a subsidiary of ICICI Bank, India's second-largest commercial bank, and member of Nokia's Board of Directors. Until late 2006, she was the bank's joint managing director

and member of the board of ICICI Bank. She is also on the board of Swadhaar FinAcess, a nonprofit company that has recently started providing microloans to the urban poor in Mumbai.

Microloans make up one aspect of microfinance. Few of those who take out microloans have ever had contact with formalized banking, particularly in rural India, but more and more are taking their first steps via a mobile phone. In the process, m-banking and microfinance are feeding each other and the scope of each is increasing.

“We need a model to facilitate commerce in a way that can create volume and bring down the cost of transactions. We need to make it ubiquitous and low-cost. The obvious answer is mobile banking. It will be necessary to cooperate and benefit from others' distribution systems, whether it is created by non-governmental organizations, microfinance institutions, banks or the telecom industry. A secure, cardless alternative is needed, based on something consumers are already using, something that is always with them.”

These women in a rural Indian village are taking out microfinance loans to improve their small-scale fabric manufacturing businesses.

Mobile banking has a lot of potential to bring cost efficiency to the provision of cash-in and cash-out services in rural areas. Whereas credit cards require expansion of infrastructure such as automated teller machines (ATMs), mobile phones make every user a potential cash-in and cash-out agent. They just need to exchange cash in return for a mobile money transaction. This removes the need for local ATMs or even retail banking outlets in rural areas, given that a certain amount of cash will flow around the local area anyway.

“In India alone, there are 600 to 700 million people in rural areas who must have access to finance using technology, not just physical bank branches. The need for this is so great for the poorest of the poor. All the players must work together, and this is happening. The mobile phone is such a powerful tool, using technology that is continuously evolving,” Ms. Gupte states.

Confidence in people

One important m-banking service is peer-to-peer transfer of funds, for example remitting money to family members rather than physically carrying cash. Then there are customer-to-merchant and customer-to-point-of-sale transactions, payment of utility bills and purchase of transport tickets. Other than the physical exchange of cash, all these banking services can be provided through mobile phones in a cost-efficient manner.

Ms. Gupte has strong confidence in the ability of those at the base of the economic pyramid to see the advantages of m-banking systems and adopt them, regardless of people’s level of education. “They may not be able to read or write well, but they understand numbers,” she says. She cites the runaway success of microfinancing as evidence of unbanked people’s readiness to embrace new practices. “They need to learn new skill sets, how to save, how to understand finances and become entrepreneurs. And they need micro-

insurance to protect their income-generating assets. Once these things are explained, they want to be part of this ecosystem,” concludes Ms. Gupte. There are challenges, but ways have to be found to overcome them.

Importance of enabling environment

Mobile banking usually involves several players, typically a telecom operator and a bank. They operate within an ecosystem regulated by national banking authorities. So far the central banks of India and the Philippines have been most active in mobile banking. The latter is one of the few countries to draw up a national microfinance strategy and m-banking forms an important cornerstone in this.

The Philippine Central Bank is one of the best examples of financial regulators focusing on m-banking regulations. It has managed to create a proper enabling environment that encourages flexibility and innovation while ensuring that policy and regulations provide security and risk management and protect against money laundering.

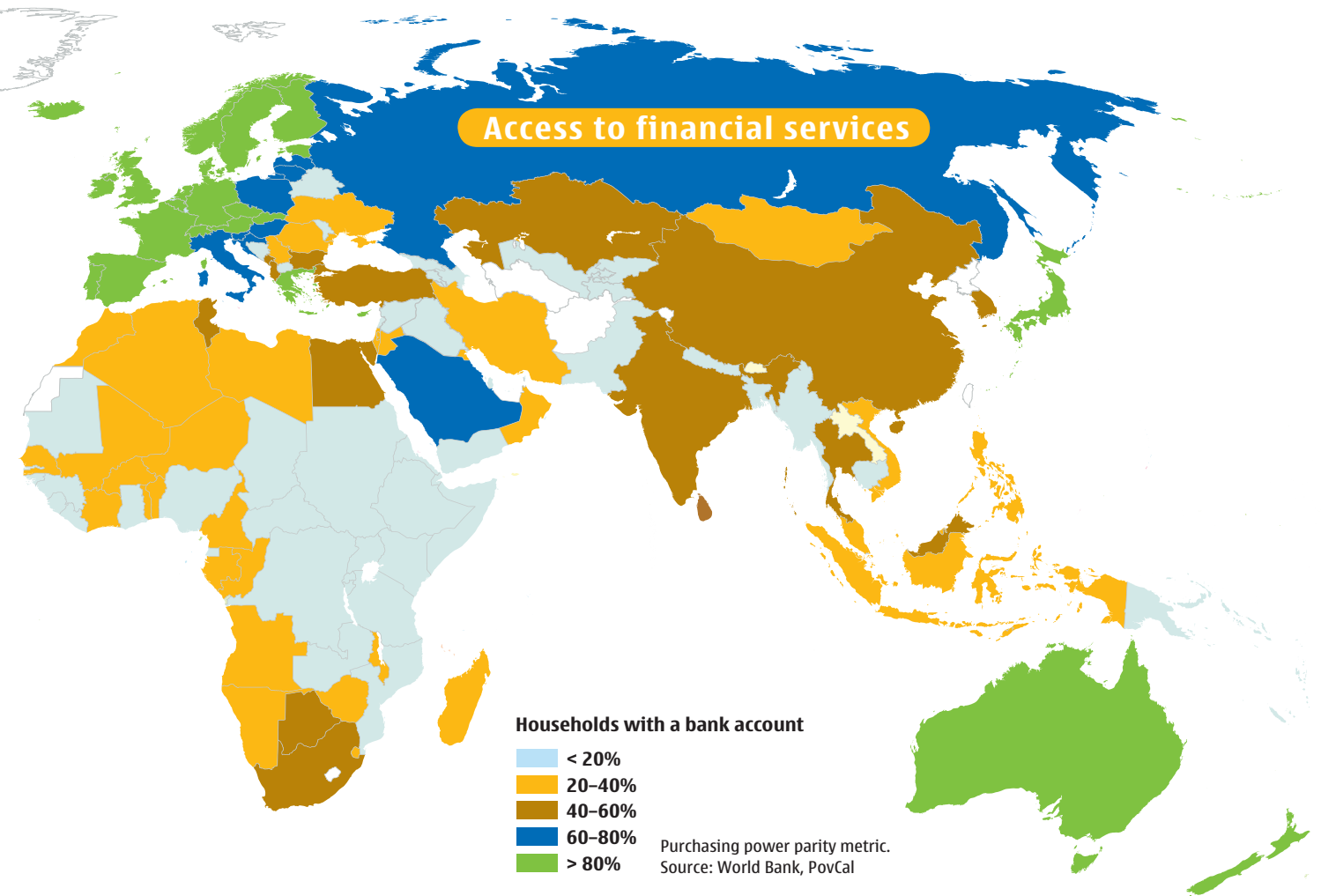
Two Philippine operators have successfully launched m-banking solutions. Globe Telecom and Smart give subscribers the option of transferring cash or paying for goods and services via their mobile phones, using SMS text messages.

The m-banking field is just taking off in many markets. Regulators and policy-makers need to create sufficient openness and certainty in legal and regulatory frameworks to enable the m-banking ecosystem to develop.

Technology ready and able

Basically all the functions needed for a full-fledged m-banking solution are possible with even the low-end mobile phones. The key for handset manufacturers such as Nokia is the user experience, making it easy to use and creating trust in banking services. Nokia can enable handsets to let the financial institutions connect to their customers with a very human technology, and the customers can stay in touch with their funds any time and anywhere.

The technology enablers available in most low-end handsets are SMS, typically used with SIM ATK (application toolkit), USSD (unstructured supplementary service data) and voice calls with DTMF (dual-tone multifrequency interaction). SMS with SIM ATK is the most common solution for secure transferring of data. It works in rural areas with no data coverage, with all subscriptions, even prepaid ones, and with most handsets. Data coverage is



not required. SMS-based services are affordable, and the consumer knows the cost of using the solution. All this, combined with the possibility to use the most low-end handsets, forms a cost-effective option for lower-income consumers.

SIM ATK-based solutions require active cooperation between operators and financial institutions. This has yet to happen on a bigger scale, although MTN Banking in South Africa, for example, has been pioneering it.

The m-banking solutions that have been rolled out around the world are quite fragmented. Standardization would be needed to avoid further fragmentation as m-banking proceeds to grow.

Concerning security

Another prime area of importance is security. Since the birth of the GSM technology, security has been a key part of the rationale behind the standards. Hence SIM ATK includes an encryption

mechanism, and in many countries the air interface is encrypted as well. More advanced solutions building on WAP, for instance, can also be set up to enable a more secure end-to-end environment.

“Data has to be secure, but at the same time quick. You need foolproof ‘know your customer’ (KYC) systems with an easy-to-use interface,” says Ms. Gupte. The m-banking ecosystem must be able to conform to KYC and AML (anti-money laundering) regulations. This means being able to authenticate the person doing the transaction, authorize and execute transactions securely in a trustworthy manner and then provide the information to initiating and terminating parties upon completion of the transaction. Whatever the technological means – SMS, WAP, GPRS or 3G-based browser – operators play a big role in enabling these services. Operators gather information about subscribers that can be used for KYC. Operators also offer the over-the-air services for verification of customers and execution of transac-

tions. While the operator service with the handset is the facilitator, it is the bank that allows unbanked individuals to become banked customers. While the quick spread of mobile communications does not necessarily guarantee a similar pace for the growth of m-banking, the potential has been shown to exist. Worldwide m-banking norms have yet to be set. If the regulatory environment is an enabling one, innovative business models and cooperation among industry players will be able to flourish, to the benefit of lower-income consumers.

All stand to gain

Given the benefits to be had from m-banking, the outlook seems positive for further development. Working together, the key stakeholders (telecom regulators, operators, financial regulators and institutions and mobile handset manufacturers) can help make m-banking a reality. Across the board, consumers, civil society and the private and public sectors all stand to gain. ■

Philippine regulatory approach provides exemplary m-banking model



The Philippine Central Bank fosters an environment that helps bring mobile banking services to rural shopkeepers, street vendors and household-based entrepreneurs.

In the Philippines micro, small and medium-sized enterprises make up 99.6 percent of total businesses and employ 70 percent of the workforce. Around 4.1 million families belonging to the lowest-income strata are engaged in microenterprise activities. Without access to financial services, these microenterprises are forced to rely on more expensive sources of credit, such as informal money lenders, that limit their growth capacity.

The Philippine Central Bank (BSP) recognizes these challenges and has fostered an enabling regime that supports microfinancing while ensuring the regulatory soundness of institutions engaged in banking services. Mobile banking (m-banking) plays a potentially revolutionary role in further expanding the reach of microfinance.

Creating an enabling environment

The General Banking Law of 2000 paved the way for microfinance to flourish within the banking sector, because it mandated the BSP to recognize microfinance as a legitimate banking activity. Since then, the BSP has taken a proactive stance in developing an enabling

policy and regulatory environment that increases access to financial services. This environment allows for flexibility and innovation while making certain that the policy and regulations are in place to ensure safety and soundness as well as maintain necessary safeguards against money laundering. The environment covers mobile and electronic banking risk management, security procedures, internal controls, anti-money laundering regulations, know-your-client requirements and consumer protection.

New technologies, unique opportunities

The BSP also created a core information technology supervisory group to effectively supervise and remain abreast with the latest developments in mobile and electronic banking. The BSP is especially cognizant of new technology platforms that help make banking easier, and is closely coordinating with the mobile operators and banks on mobile banking to fully understand the operational details. Through electronic cash platforms such as Smart Money and Globe G-cash, mobile phone users are able to make payments and transfers,

send remittances or make purchases. New technologies present a unique opportunity to reach a wide range of clients, including the lower-income segments of the population, often in rural areas, who are traditionally underserved and unbanked.

Innovating low-value payments

The Rural Bankers Association of the Philippines – Microenterprise Access to Banking Services (RBAP-MABS, funded by USAID) has a joint project with G-Xchange Inc., the mobile commerce subsidiary of Globe Telecom, which is one of the Philippines' largest telecommunication companies. The joint project provides m-banking services using the G-cash platform. Banks under this program are allowed to become "cash in" and "cash out" outlets that are accredited to convert actual money into electronic money and electronic money into actual money, respectively. The BSP has approved the guidelines, training and other mandates that the bankers' association requires banks to follow for G-cash services.

As of March 2007, there were 43 rural and cooperative rural banks offering electronic banking services, particularly m-banking. According to Mr. John Owens, chief of party at RBAP-MABS, transactions are growing and have increased substantially over the previous year, with over 2,000 clients being registered weekly by rural banks as m-banking clients. The potential for widespread m-banking is significant, as SMS usage in the Philippines is one of the highest in the world in ratio to population. ■

This article is based on Philippine experience in alternative payments platform to increase access to financial services, a presentation delivered by the Philippine Central Bank at the World Bank event Next Generation Access to Finance in Washington, DC in September 2007. For more info about RBAP-MABS, see www.mobilephonebanking.rbap.org.

operator profile

Kenyan mobile money transfer service shows the way

Mobile-based payment and money transfer services are proving a big hit in Kenya with over 6,000 people per day subscribing to Safaricom's M-PESA service, launched in March 2007.

M-PESA (*pesa* means "money" in Swahili) targets unbanked, prepaid mobile subscribers, enabling them to transfer money securely using their mobile phones. The service has more than one million customers today.

As well as person-to-person money transfers, M-PESA is being used for everything from school fees to buying goods and services. Some commercial organizations are also using the service to pay salaries to casual and remote field workers such as truck drivers. Individuals who are nervous about carrying cash are using it to move funds securely and quickly.

Targeting four out of five Kenyans

The system is designed to facilitate secure, convenient and low-cost money transfer in both a consumer model (person to person) and enterprise (business to consumer and vice versa). Just one in five adult Kenyans has a bank account. Cash remains important in these markets, and moving cash around can be relatively expensive.

M-PESA began as public-private initiative with the fundamental objective of determining whether mobile connectivity could deepen the provision of financial services for people in emerging economies. In 2005, Vodafone and Safaricom, Vodafone's affiliate in Kenya, won funding for a pilot scheme from the UK government's Financial Deepening Challenge Fund competition. The success of the pilot led directly to M-PESA's commercial launch in Kenya in March 2007.

Simplicity and security

The product is very simple. A customer registers for the service by providing some basic information such as national ID and date of birth, and has a virtual wallet enabled for them on their SIM. Once enabled, a customer can go into more than 1,200 retail locations and load cash into a virtual wallet on their SIM. They can then use simple, menu-based commands from their SIM to send money to other mobile phones (even to non-M-PESA-registered customers), pay a bill, buy airtime or make a withdrawal. The system is very secure, with each customer having to register a four-digit personal identification number in all transactions to use the service. The transaction messages are all encrypted. The service has customer support available 24/7 with real-time visibility on transaction activity and trained Safaricom support staff.

In Kenya the service has been positioned as a payments service, not a financial one, enabling the regulators to authorize Safaricom's activity appropriately. All the customers' balances are pooled and banked as a float with the Commercial Bank of Africa.

Money transfers are an important part of Kenyan life. When surveyed, 17 percent of respondents had sent or received transfers from within Kenya. And of those who have received transfers, 28 percent listed transfers from family or friends as their main source of income. It is also planned to extend the service into international remittances and allow Kenyans in the UK to send money to M-PESA subscribers in Kenya.

The response to M-PESA has been outstanding, with registrations running at

more than 6,000 per day. Already the system is being used to allow bulk disbursement of payments from organizations to employees, and has been trialed to allow the disbursement and repayment of microloans. Mobile phone penetration continues to grow quickly in Kenya and other similar markets. Vodafone and its partner network operators regard value-added services such as M-PESA as central to owning the relationship with customers over the long term in these growth markets. The model has many benefits as a stand-alone revenue opportunity – Safaricom charges for each transaction – but also allows the network operator the chance to reduce churn and gain new customers through related services, for example by partnering with financial institutions to offer services such as loans and savings.

Encouraging experiences

The experience of M-PESA is encouraging in terms of its rapid adoption. Making the service proposition clear, need-based and easy to understand has been central to its early success. Providing a very simple user interface has also been a cornerstone of design phase work. The future success and scale of the service will ultimately depend on how valuable it is to customers. Some possible challenges include a mandated obligation from the regulators to connect to a formal clearing system.

Vodafone is building a centralized team to take this service into new markets as well as moving forward with different business models to meet different regulatory requirements, such as the need to partner with regulated financial institutions. ■

For the majority of lower-income consumers in emerging markets, monthly total cost of ownership of mobile communications is still far beyond their reach.

Affordability key in bringing digital inclusion

Today, it is widely acknowledged that mobile communications holds the greatest potential to bridge the digital divide. Over 80 percent of the world’s population lives in areas covered by GSM networks, yet only half of the world’s population uses mobile communications services. Since the next billion mobile subscribers will come mainly from the lower-income segment, mobile communications needs to be affordable.

A key factor affecting new mobile

subscriber growth is the total cost of ownership (TCO), which includes the service fee, taxes and mobile handset price.* In order to better measure the cost of mobile communications for a lower-income consumer, Nokia studied the TCO from a low-cost perspective across 80 emerging markets. The new study reveals that high TCO forms a major subscriber growth barrier for accessing ICTs through mobile phones in most emerging markets. It shows that in most countries governments would

need to work in close cooperation with the mobile industry in order to reduce the TCO for their lower-income citizens.

Previous TCO studies used an average-user perspective, not taking into account the fact that 80 percent of future mobile growth is expected to come from Africa, Asia, Eastern Europe and Latin America, and mainly from the lower-income segment. In the new study, handset price was based on the lowest-cost Nokia entry-level handset, service price was based on an OECD low-cost service basket of prepaid mobile subscription services and taxation comprised all direct taxes applicable to both handset and services (including VAT, sales tax, extra telecom tax and custom duties). Using the same handset model and service basket makes it possible to compare individual countries to each other.

Handset price decreasing, service prices increasing

The average TCO for the lower-income consumer is currently 13.16 US dollars, only a 1 percent decrease between 2005 and 2007 despite a 33 percent decrease in the price of the lowest-cost Nokia handset. The cost of prepaid services for the lower-income consumer increased by 4 percent during the same period (see Graph 1).

Another recent study, conducted by the GSM Association, reveals that mobile

operators in sub-Saharan Africa are contributing important sums to the countries’ national budgets through indirect taxes and fees. This, in turn, translates into higher service fees for the consumers and consequently forms a barrier for mobile services uptake.

Goal of five US dollars per month

TCO of less than five US dollars per month would enable the majority of

the people in emerging markets to use mobile services, and thus help lower the digital divide. Only four of the 80 countries studied have achieved this:

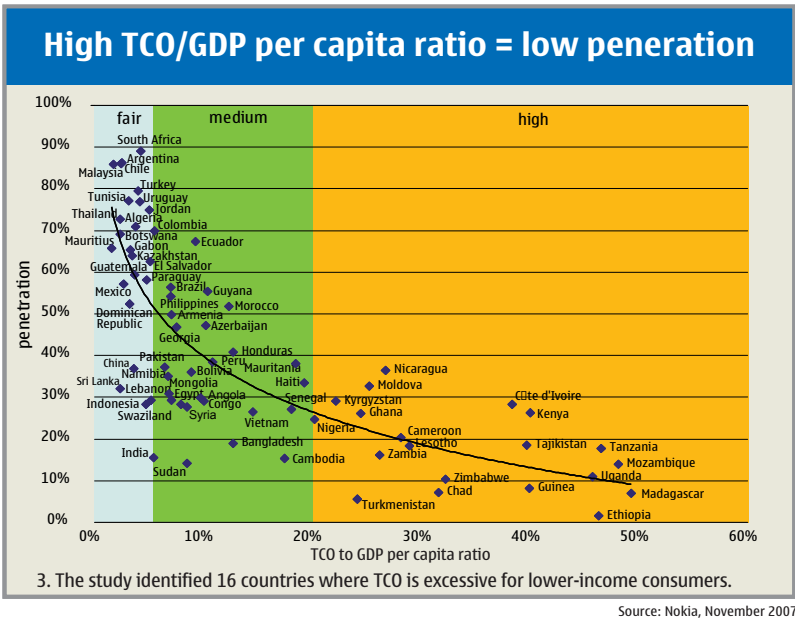
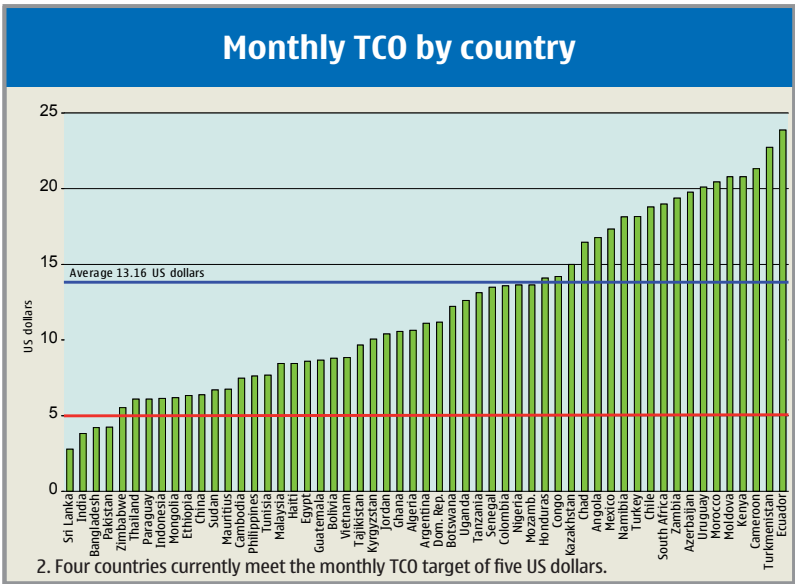
Sri Lanka, India, Bangladesh and Pakistan. Most governments in these top performer countries have made serious efforts to enhance the affordability of owning and using mobile phones. For example, India has removed some of the license and spectrum fees imposed

on the mobile sector. Pakistan has reduced import duties on mobile handsets to zero and has significantly reduced the SIM card activation tax. These efforts have had a clear impact on the mobile penetration of the respective countries (see Graph 2).

The Nokia study also measured TCO ratio to the countries’ GDP per capita, revealing a strong 70 percent correlation between this ratio and mobile penetration, confirming that a high TCO in relation to GDP per capita results in low mobile penetration (see Graph 3).

The study shows that governments and the mobile industry need to continue their efforts to reduce the TCO in order to provide their lower-income citizens with an access to ICTs. High customs fees for mobile handsets have resulted not only in high handset retail prices, but also in a thriving black market. In addition, the private sector needs to focus on delivering affordable and attractive handsets that meet customer needs and innovative services that are relevant to lower-income consumers.

Mobile devices are expected to become the primary means for accessing voice, data and also internet services for the majority of the population in emerging markets, so the affordability of the services needs to be followed closely in coming years. ■



* Monthly total cost of ownership for the lower-income consumer calculated as: cost of handset/36 + a simplified OECD-defined low usage mobile service basket + direct handset and service value added, sales tax and/or specific telecommunications tax + customs or similar fee on handset. The study has assumed a three-year lifetime for handsets, and the same for a prepaid subscription due to churn.



Mr. Luiz Eduardo Falco,
CEO of Brazilian operator Oi.

Oi tackles Brazil's segmented market with converged solutions

In a huge country with a highly diverse population that is growing at top speed, Brazilian operator Oi is succeeding by focusing on customer segmentation and by offering converged services.

In 1970 when we won the World Cup, we had 90 million inhabitants. Thirty-seven years later we have 180 million inhabitants. In other words, we doubled the population," says Mr. Luiz Eduardo Falco, CEO of Brazilian operator Oi. The country's increasing population is highly segmented in its spending power, however, with a few high earners and a large number of people on low incomes.

Falco believes that recognizing this inequality, which is typical throughout Latin America, has been key to Oi's success. "We work very hard on market segmentation to understand exactly who the consumer is," he says. "Then we determine which products would interest that consumer."

For example, while some Brazilian operators tried to boost ARPU by distributing top up cards in high denominations, Oi realized that this would deter lower-income subscribers. "We thought that to increase the price bracket of the card would not benefit the population. Therefore, we worked to make it as small as possible. Nowadays I can see all my competitors moving in the same direction," says Falco.

Convergent services from a converged company

Convergence has been Oi's other main tool of choice. For example, Oi recognized that high-spending consumers wanted the ease and simplicity of a single bill for all their communications.

So the company introduced Oi Conta Total (total bill), which buys minutes that can be swapped between mobile, fixed and internet communications. "It is very simple. People understand it and they think they are paying a fair price. But mainly they like it because we can take care of all their needs," says Falco. Oi has also launched a similar scheme for lower-spending prepaid customers, with its Oi Cartão Total (total card) for transferable mobile, fixed and public telephone minutes.

As well as offering converged services, Oi is pinning its hopes for future success on converged branding throughout its different offerings. Falco says: "If you are a convergent company offering products and services and a unique branding, your customer understands that you are a one-stop shop. If you arrive with eight names, the customer does not know from whom to buy or what to buy."

And while Oi has successfully converged its services on top of its time-division multiplexing (TDM) network, Falco is convinced that the rise of internet protocol (IP) will make convergence easier in the future, whatever new services crop up. "An IP network could have thousands of convergent services," he says.

Oi's two-pronged strategy of segmentation and convergence has certainly proved successful so far. As the only truly integrated operator in the region, the company has 14.3 million fixed lines, 14.9 million mobile subscri-

ers and 1.4 million broadband subscribers, and is a leader in long-distance in Region 1, which is a wide geographical area covering 16 states of the country.

New services point to continuing growth

One area with great potential is mobile payments, especially since Brazil currently has more mobile phones than credit cards and operators are effectively offering post-paid customers credit already. "People think that in view of the fact that we have more access than the credit cards, we are already in the credit business," says Falco. He believes there is huge untapped potential in helping people make the sort of small payments that banks are not set up to deal with. "You do not get to buy anything on the internet paying one US dollar. It is because the bank has a limit. Its platform has a cost. What we are putting in the market is a platform that is half the cost."

Data is the other big target for future growth. The sheer geographical scale and staggering population growth in Brazil mean that, while almost everyone can access voice services, many people remain excluded from data services. Falco says that Oi supports the Brazilian government's desire to change the situation. As a minimum, he thinks that every school should have broadband access in order to deliver a more consistent standard of education. "I think that it could change a generation," he says. ■

Creating loyalty in prepaid customers

Prepaid drives the market for many operators, yet prepaid customers are notoriously fickle and prone to churn. We look at some of the ways in which operators can tackle the issue.

Prepaid customers account for over 60 percent of mobile users globally and typically dominate even more in new growth markets. Without a service contract to honor, prepaid customers can easily switch to a competing operator if they consider the price or service more attractive. Minimizing churn is a priority at the top of the agenda for most operators in markets dominated by prepaid users. It demands a focus on raising customer loyalty by delivering real value to customers, whether on cost, service or convenience.

At the same time, operators need solutions that can reduce day-to-day costs and boost profitability while managing a high-volume subscriber base with low average revenue per user (ARPU).

Pricing and customer care

Flexibility in pricing is critical and operators must be able to introduce a variety of tariffs and loyalty plans quickly to attract and retain customers, regardless of whether they are prepaid or postpaid.

Some operators are already benefiting from tariff innovations. For example, one operator in Indonesia was able to successfully implement a tariff that allowed free calls from midnight to five o'clock in the morning. This piqued interest among young subscribers who call friends late at night and attracted a surge in new customers.

Another opportunity could come from supporting enterprise customers that want to provide staff with mobile devices that are postpaid during the day with costs paid by the employer, but revert to prepaid at night. The benefit for employees is that they have the same telephone number for day and night use, and can electronically

recharge their prepaid account.

Such complex pricing arrangements need convergent charging and customer care. Operators must be able to introduce targeted solutions, tariffs, bonuses and loyalty plans for all their customers, regardless of whether they prepay or are on monthly contracts. Solutions such as Nokia Siemens Networks charge@once make it possible for operators to take the initiatives in this way, helping them differentiate themselves from the competition and drive up revenue.

Make life easier for prepaid customers

Many customers on low incomes use their phones only to receive calls. And even those who do make calls may have very limited spending power, so it is important for them to know their prepaid balance and its expiry date after each call. Typically, subscribers call or send a text message to a voice response unit to retrieve such information. But this is complicated and consumes network resources. Instead this information should ideally be sent directly

to the customer's mobile phone automatically, as is the case with the Nokia Siemens Networks Prepaid Tracker. The Prepaid Tracker menu also shows the cost of the last call or SMS, and the amount of the last top up, all without the customer having to take any action.

Another frequent difficulty for people in rural locations is finding somewhere to top up their account. Paper-based vouchers are still used in many markets, but there are now solutions available, such as the Nokia Siemens Networks TopUp solution, which allow resellers to recharge prepaid customer accounts electronically without using vouchers or transferring airtime between subscribers.

Mobile devices are shared in many markets, and customers want to know they are not being over-charged for a call. The tools are now available to model shared phone use along the lines of an old-fashioned telephone booth. Nokia Siemens Networks Cost Tracker allows customers to pay before making the call. The shared phone owner keys in the correct amount on the phone and the call is cut off once the money is spent.

This, in turn, encourages the growth of small businesses and boosts market penetration in rural areas. Operators are gaining effective tools to address churn among prepaid customers. ■





Inside this issue

Mobile banking (m-banking) forms the main focus of this edition of *Expanding Horizons*. We also interview the CEO of Brazilian operator Oi about the secrets of the company's success. In addition, this issue looks at the total cost of ownership of mobile communications from the perspective of lower-income consumers.

Read all about these subjects and much more inside *Expanding Horizons* magazine!