How India reached critical mass for mobile services

by Helena Jansson, p. 12

FROM BEING A LAGGING and problematic market, India has seen the number of mobile users rise at an amazing rate in the past year.

TV Ramachandran, director general of the Cellular Operators Association of India (COAI), says that there will soon be about 8.5 million new subscribers every month – adding at least 80 million more subscribers in 2007.

A large part of the population remains unconnected, with only 60 percent of the population and 40 percent of the land mass covered.

Tariffs have fallen drastically in the quest for customers, and calls are as cheap as USD 0.01 per minute. Ramachandran says: "People in India today are not without cellular services because they cannot afford them – almost anyone can afford them. The problem is that people – especially in rural areas – are waiting for mobile services to reach them."

Business is healthy for Indian mobile companies, despite the lowest tariffs and the lowest ARPU (average revenue per user) in the world. For the marginal, low-end customer, ARPU is USD 3-4 per month. Overall, ARPU is USD 7-8. They manage by reducing costs, Ramachandran explains – for example, by being innovative at outsourcing non-core operations such as IT and network operations. In addition to that, operators have reached customer volumes that give them substantial economies of scale.

With profitability expressed in EBITDA, the margin is 35-40 percent, which is high compared with many Western companies.

Government policy is now in favor of the mobile operators, but it has not always been so. Looking back, India has not been an easy market for operators, with complicated laws and regulations that hampered growth. The market was characterized by high tariffs and rigid bureaucracy.

The government's goal is to reach 500 million mobile subscribers by 2010, which means adding 330 million in three years. In order to make that happen, costs have to be cut, and COAI is an active partner in many of these projects with the government.

Cooperation is a key word for the players in the Indian mobile market. In the chase to cut costs, there is cooperation to an extent not seen in other parts of the world. For example, the government brought in a system of mandatory sharing of base station towers and now every new rural tower has to be shared by three operators.

India is also closely involved in a global project for mobile money transfers, which will deliver cost-effective services for users. Bharti, the biggest Indian operator and the chief sponsor of the project, is leading this initiative with State Bank of India

Idea Cellular is one of India's fastest-growing mobile operators, with a market share of 8 percent. Sanjeev Aga, CEO of Idea Cellular and chairman of COAI, points to three factors that explain the amazing mobile growth of the past year:

"The cost of entry, the cost of staying connected, and the increase of coverage hit critical mass at the same time," Aga says. "A new handset now costs as little as USD 20 – that is cheaper than a bicycle. For only USD 3 a month, you can stay connected. •

Healthcare unbound

by Balaji Bhoovaran, p. 53

CHANGI GENERAL HOSPITAL in Singapore is rewriting the way healthcare is administered and managed. With the implementation of a mobile healthcare solution, the hospital is providing specialized, interactive and patient-based healthcare in a cost-effective way.

The hospital's mobile healthcare solution combines new-wave devices and networks to relay patient information instantaneously to key stakeholder groups. One unique factor with this solution is the intelligent application layer that processes diverse information from various sources, and disseminates data and content that is most relevant to the different stakeholder groups: the doctor, the hospital and the health insurer.

A wireless, lightweight device attached to the patient monitors blood pressure, pulse and ECG in real time and at regular intervals. The measurements, along with patient diary entries, are transmitted to a centralized server. The information stored in the mobile health core system allows intelligent content analysis and knowledge management, matching patient history, medication and other records with the data coming in from the patient. This information can be accessed wirelessly at anytime to ensure efficient and timely monitoring.

The Changi General Hospital business model is built on four principles:

- Improve the patient experience;
- Enhance quality and efficiency of patient care;
- Equip staff to make informed decisions, while adopting a positive work style;
- Introduce cost and productivity efficiencies.

Despite initial hiccups and new routines, hospital staff acknowledge that the system has greatly improved efficiency. With the system running properly, they have been able to schedule their tasks more efficiently, can respond to patient requests in real time, and make better-informed decisions. There is a new sense of empowerment and ownership as staff can offer relevant remedies via the patient's mobile phone or PDA.

Patient requests, and their conditions, can be addressed more quickly because of instant access to information and shorter processing time.

The enhanced workflow results in a sharp reduction in stress for staff providing critical care to patients. The reduced paperwork load, doing away with information silos, and faster completion of routine checks ensure a greater sense of accomplishment among medical staff. •

The broader value of communication

by Michael Bjärhov and Elaine Weidman, p. 24

MANY STUDIES SHOW how important Information & Communications Technology (ICT) is for development and growth. In this context, mobile phone communication can have an immediate and direct impact on the daily lives of the poor.

For society, the broader value of communication is about providing basic services, such as healthcare. About half a million South Africans now use their mobile phones to do their banking. In South Africa, more than half the adult population do not have bank accounts but, significantly, 30 percent of these people do have mobile phones. In Kenya, Safaricom has launched a new mobile financial service called M-PESA, aimed at the millions of people who do not have traditional bank accounts.

Global remittances represent an enormous untapped market, estimated at more than USD 200 billion per year. Improved remittance systems stand to serve millions, and ultimately billions, of people around the world who lack basic banking services, in many cases because of a lack of credit history. And these mobile services will drastically cut the cost of cash transfers compared with traditional banking.

Statistics from the GSM Association show that, for every increase of 10 percentage points in mobile penetration, GDP increases by about 1.2 percent. Considering the cumulative, or flow-on, benefits of the increase in mobile phones, this figure may be closer to 8 percent.

Ericsson's own research shows that the poorer people are, the more they are prepared to spend on communications, because it fulfills basic needs. Benefits to the low-income segment derived from mobile communications are so substantial that people are often willing to redirect a higher-than-expected portion of their earnings to mobile services – typically 10 percent and in some cases up to 40 percent.

In markets where people live on USD 1-3 per day, operators are forced to be lean in their operations. This cost pressure has the potential to revolutionize the telecom industry, as these operators create new business cases to cater for their burgeoning markets. The more established players have begun to take note of how this situation is evolving. We are already seeing examples of how operators, such as MTN in South Africa with its project MTN@ccess, are beginning to take advantage of this potential.

With advanced telecom solutions, countries such as India and China have the opportunity to leapfrog some of the unsustainable consumption patterns of the Western world, avoiding high carbon-dioxide emissions.

There is a myriad of solutions under way, from microwave technology to alternative energy sources such as solar, wind, biofuel and fuel-cell technology, combined with the most energy-efficient base stations available. Locally produced biofuel products contribute to the local economy through job creation, creating a ripple effect in the social and economic development of rural communities. •

A phone can mean a new life

by Erik Kruse and Håkan Jonasson, p. 8

LIVING ON USD 2-5 A DAY IS NOT EASY. Every opportunity to make a few extra cents is crucial. Ericsson studies of Kenya and Nigeria reveal that mobile networks can really enhance living conditions for poor people.

Infrastructure in developing countries has often been neglected for years, resulting in frequent power cuts, bad roads, and a lack of public transportation and phones. Unemployment is high and many people rely on the informal sector for their incomes. Competition is fierce as many people sell the same products; those who run their businesses more efficiently are therefore more likely to succeed.

In an environment where every deal is crucial, the mobile phone has made it possible to negotiate prices and arrange deliveries from suppliers, as well as to build and maintain customer relationships, resulting in more business and increased income.

There is a correlation between income and communication habits. Increased income and a desire to solve logistical issues are the main drivers for people in low-income segments buying a mobile phone.

When earnings are very limited, calls are made strictly in relation to earning money.

When income increases, calls to family members quickly become more frequent, longer, and take on a more emotional character. With higher income, most calls are to family members, although calls to friends also increase.

Another important and related finding in the research is that the proportion of income spent on mobile phone calls is much higher among those with lower levels of income.

In addition to increased earnings for ordinary businesses, the network itself opens up the possibility for new sources of income.

The single most important barrier to the continuous spread of mobile phone ownership and usage is money. Extremely poor households (earning less than USD 2 a day) have difficulty finding the means to buy a handset, although there are cheap second-hand models for sale.

For households earning USD 3 and more a day, a mobile phone is within reach, and families may make joint efforts over a period of time to save up to buy one.

Increased income and efficiency for very small businesses are the main driving forces within low-income segments for buying a mobile phone. A mobile phone is affordable for households with a daily income of USD 3, whereas households earning USD 1 per day or less cannot, in most cases, afford to buy and use a mobile phone.

Lower values on pre-paid top-ups and cheaper handsets would make mobile phones even more accessible for low-income segments. Transfers of airtime and money – as well as information from institutions – via SMS open up the way for further development of financial services (such as paying electrical bills and managing bank accounts) via the mobile phone. •

Internet set to reach the rural masses

by John Gagnerud and Michael Bjärhov, p. 34

MOBILE NETWORKS CAN SERVE rural consumers for about a tenth of the cost of a fixed network, and can offer medium-speed internet access and other data services. This removes a great hurdle to bringing the internet to all.

The availability of data access will drive information & communications technology (ICT) development in general, and traditional, as well as new, PC applications will have a mobile component for wider usage in the population.

The advent of broadband internet connections is also changing attitudes to universal service funds. Because broadband links can carry both voice and data, some countries are starting to subsidize broadband rollout instead of just concentrating on phones.

It is important not to assume that advanced services are unsuited to emerging markets – leading-edge applications will almost certainly stimulate growth in such regions. While the bulk of revenues will come from basic voice services and peer-to-peer SMS, an attractive mix of value-added services can provide a significant additional revenue opportunity for operators. In particular, there is great interest in local data – news, community service information, prices, weather forecasts, and so on.

Many institutions – such as health authorities, educational institutions, and governments – will almost certainly need more bandwidth for mobile data. The relatively low investment costs of implementing GPRS and EDGE give GSM operators a golden opportunity to offer subscribers mobile data services at a reasonable price.

GSM operators have the opportunity to be the first movers in offering "internet services for all," holding a time-to-market advantage over any competing technology.

By equipping community-center PCs with data cards or embedded data modules, which today normally support EDGE as well as HSPA, operators can provide cost-efficient access to data services for everyone now, as well as in the near future when bandwidth requirements increase and 3G licenses are released.

A question remains when it comes to high bandwidth: are HSPA or WiMAX required? Only the consumer can answer that. But in many markets, where people might spend hours getting water, food or traveling to work, it is hard to see a strong demand for high-speed data, mobility, roaming or other features that consumers in the Western world take for granted. The mere ability to connect to the internet and run relatively simple applications for banking, trading or entertainment is a big leap in technology usage for many people in these markets.

Most of the networks built this century can easily handle EDGE data speeds: peak data rates of almost 300Kbps and average data rates around 120-160Kbps. With this bandwidth, almost all types of data applications available on mobile phones work well, and PC services are also possible.

Provided the spectrum is available, the decision to evolve networks with new capabilities will be less a technical issue and more a business one. •

What's different about dilemmas?

by Bob Johansen, p. 40

THE BIGGEST CHALLENGE for leaders is to learn to live with, or even embrace, the tensions inherent in dilemmas. Dilemmas disguised as problems are particularly dangerous. If you engage with a dilemma as if it were a problem, you may reach a conclusion early but you are not likely to win.

Most of today's leaders have been taught – many of them very well – to solve problems. Of course, there are still many problems to solve. The solve-and-run approach, however, is dangerous when applied to dilemmas. With dilemmas you need to listen for what's behind the words, what's beneath the data. You need the discipline and restraint to avoid forcing a premature decision. If you get there early, you've got more time to decide if you're dealing with a solvable problem or a dilemma.

Problems and dilemmas need to be dealt with differently. A problem is "a question or a puzzle that needs to be solved." Typically, a problem has a binary (either/or) solution, or at least a clear solution. Problems are there to be solved. In a world of dilemmas we have many options for response, but usually the options aren't simple and don't come as either/or combinations. Most of today's leaders, and most of today's organizations, are designed to solve problems – not to win with dilemmas that have no single solution.

There are still many problems that have binary solutions, and it is vital that someone solves them. Looking ahead, however, most problems with binary solutions will tend to be tactical, important for successful execution and appropriate for the operational people within a firm to handle. Strategic thinking will be dominated by dilemmas. The senior leaders in the firm who create and implement strategy will spend most of their time dealing with dilemmas.

Dilemma-management skills are quite different from problem-solving skills. The ideal leadership state in emergency situations is somewhere between decisive and righteous, but the immediate challenge is to listen, to figure out what's really going on.

In the world of problem solving there is usually one winning solution and one winner for each problem. One winner, one loser: an-all-or nothing game. But there is a special hope implicit in dilemmas: it is often possible to come up with win-win strategies where there is more than one winner. Cooperative models can work even in a competitive environment.

Dilemmas are messy and frustrating, but they are also fertile ground for new insights and inspiration, and necessary for creating strategies that succeed – even when you cannot solve them. Dilemmas must be held in one's mind and exorcised; they must be understood through stories and experiences. It takes a story to understand a dilemma. Stories, an ancient medium, will become even more important in the future world of dilemmas. Dilemmas cannot be exorcised by quick judgment or eliminated through analysis. The best leaders for the future will be those who thrive in the tension-filled stories between knowing too soon and deciding too late. •

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Now that we are all connected, what should we do next?

by Scott Smyers, p. 30

HOW SHOULD BUSINESSES position themselves as we approach the all-communicating, always-connected world that telecom and electronics vendors, at least, dream of? We cannot really say, argues Scott Smyers of Sony Electronics.

Looking at connectivity through the 30-year history of smart devices, he makes two points. The first is that these trends started and took root in a context where there was business interest. It was not consumers that demanded online calendaring capabilities, for example. The second point is that novel uses are cropping up at an exponential rate, faster than individuals and businesses can hope to comprehend. There is a host of potential community connections that are unknown or untapped.

Connecting means more than getting online, because internet connectivity is now ubiquitous. It also means joining and participating in groups, community services or facilities that enable broad community interactions. As connectivity moves from being a want to a need, it becomes less a pure business and more an essential service, just as the phone and electricity have done.

Consumer mass market means selling one device to a large number of individuals, as opposed to the business model of selling large numbers of devices to a single entity through a single buyer. Now we are at a point where consumers are connected and have computers and other gadgets with which they can communicate and be entertained. One fundamental assumption is that "killer apps" can erupt suddenly and unexpectedly with explosive force and effect. Another is that killer apps have nothing to do with getting online, because connectivity is ubiquitous.

The underlying pattern is that people want to connect to and be part of something. The second trend, coming from the opposite direction, is that people are becoming less intimidated about using communications devices and services.

The internet is becoming increasingly popular because it is the meeting point for people. And it is accessible by people in sufficient numbers and diversity that it is poised for continued eruptions of an expanding set of offerings and killer apps because it can connect people in new, as well as traditional, ways.

The internet, mobile phone services, and landline services do not offer means of communication that go beyond normal words and sentences – at least not yet – but they offer a dimension of communication that masses of people are incorporating into their lives in unexpected ways and to unexpected degrees.

The conclusion must be that consumers now have choice – a number of ways to do a number of things. But the way in which they are spending their time, once they are hooked up with suitable services and products, is in connecting.

Consumers can now get what they want, so the target for businesses in this climate is to invest in ways that give individuals what they are looking for, which means interaction with others who have similar interests. This may sound too general to some, but you can go a long way in a business venture by serving up the infrastructure on which consumer needs will be met. •

Distribution is the name of the game

by Mats Thorén, p. 46

JOHANNESBURG-BASED MTN operates in 21 markets across Africa and the Middle East, and is growing quickly. The target for 2007 is to reach more than 50 million subscribers.

It has taken some unconventional thinking to reach this rate of growth, and leading the charge to reach customers in bold new ways is MTN Group's chief marketing officer, Santie Botha.

There is no blanket approach to a market as diverse as MTN's, she says. The common denominator is rather the principles to which it has given a lot of thought over the past few years: affordability, accessibility and simplicity.

One problem is how to reach out at a low cost and get close to customers in areas with very poor infrastructure. With the exception of South Africa and Syria, where post-paid accounts for 20 percent and 50 percent of revenues respectively, MTN's markets are 97-98 percent pre-paid. That makes distribution the name of the game. The goal is for pre-paid airtime to be available to purchase every 500m along the street.

Electronic voucher distribution (EVD) solves many of the hurdles associated with distributing the traditional scratch cards for pre-paid airtime.

EVD has substantial benefits for both MTN and its distributors. The main distributors engage 10-15 sub-dealers, who in turn engage others, and so on. That makes retail chain stores superfluous; you just set someone up as an authorized MTN distributor. In this way, MTN creates business opportunities for thousands of people. This system empowers people, spurs entrepreneurship and makes a significant contribution to the GDP in these countries.

Botha says the crux in emerging markets is that consumer behavior is informal and telcos are moving into informal distribution structures. This makes it important to use lower denominations when selling airtime. MTN already employs per-second billing in Africa and will soon introduce it in its new Middle Eastern markets as well. The next thing MTN is looking at is mobile money.

"Rather than having a specific formula for innovation, it is about learning from the successes across all our markets and ensuring that these are replicated across the board," Botha says.

Examples of innovative services include the public phone concept in Uganda and Rwanda – a phone box on wheels; "vocal chat" in Cameroon for pre-paid users; and "happy hour," which was first launched in Nigeria, and allows subscribers with credit on their accounts to talk for free between 12.30am and 5am. •

Telehealth key to reinventing healthcare

by Rainer Herzog and Jonas Fogekvist, p. 50

TO BE DEFINED AS "TELEHEALTH," systems must include the ability to monitor vital signs (body data) and transmit these via mobile devices to a clinical center at a hospital. A variety of systems and trial initiatives of this kind are already on the market. The systems are either tailored to fit a specific disease area or are of a more generic type, acting as a mobile front-end system that needs to be integrated with medical sensors or systems as required.

System software and hardware manufacturers are among the core players in telehealth because the products can be almost anything – ranging from stand-alone internet information services to highly integrated medical systems. Associated medical equipment is often made by manufacturers that usually deliver to the healthcare sector. The telehealth market is a new opportunity for these companies.

Mobile network operators, as well as fixed-line operators, have an obvious interest in promoting telehealth. Increasing amounts of sensitive data will flow through the networks, and more treatment and monitoring areas will come into play as the systems evolve. System integrators also have an interest in telehealth solutions.

Service providers will also gain from telehealth deployment. Not every customer will want completely integrated systems. Sometimes there are advantages to an independent system approach and this may give rise to a market for hosted and managed services.

Hospital-related costs usually amount to about 30 percent of a country's total public healthcare spending. Of the total number of hospital patients each year, it is estimated that 10 percent could be discharged early if out-of-hospital monitoring was in place. It might be assumed that of these, about 20-30 percent would apply and use mobile technology, adding to the potential for mobile applications.

Various small-scale studies into potential savings from patient management programs have shown that telehealth solutions can reduce disease-related costs by 10-30 percent.

Time-to-market has become the most important success factor for the pharmaceutical industry. Studies have shown that it is possible to reduce time for clinical R&D by up to 30 percent using wireless technology.

The pharmaceutical industry can easily count the advantages of telehealth in dollars and cents, and is likely to deploy telehealth solutions. But for hospitals and public healthcare, the outlook is very different – and the major challenge is not the technological one. The main reason behind telehealth not being widespread today is related to human behavior and social patterns in hospitals. The introduction of telehealth solutions means a new approach to treatment. Doctors and nurses need to adapt to new, flexible work patterns. In the past, every patient waited outside the door to see the doctor – in the future, they will appear on a computer screen. •

Let's get serious about convergence

by Jean-Charles Doineau, p. 56

ARE TELECOMS SERVICE providers really serious about finding a fixed or equilibrium state in an industry characterized by rapid technology changes? Jean-Charles Doineau of Ovum hopes they are not. The synergistic combination of voice, data and video on a single network will create new efficiencies. That should be the focal point of our industry.

The fact that many of these paths coexist can often be interpreted as a lack of "vision" for our industry. But service providers have to find their own routes to reach this focal point – and it can take years.

The first step on the convergence journey is engineering and network design. The existence of a single focal point for networking environments implies that a common engineering and design language can be developed to describe it, and that a common environment can be built using it. All major telecom standardization bodies have embraced this path, defining the future of telecom networking using the IMS framework and terminology. It is the first time this has happened at the level of the entire service-control and service-execution network layers. The fact that the first versions of each of the service-level standards of these different bodies use a common framework means that the focal point they are ready to depict will become reality; it is just a matter of how, and when.

Convergence is about making services accessible independently of network resources. Although this is quite difficult to do, there are early moves in this direction which show that service providers are eager to embrace this approach to service delivery.

Engineering language and a common view of services are just now defining how the focal point we were describing could take shape.

Sorting out the puzzle and rationalizing the solutions for the metropolitan network is certainly the first headache that carriers have to sort out. They must create a certain level of homogeneity in their networks so that a convergent core network can be connected to the metropolitan area.

Then there is the transport side of the network, where multiple technologies are still used in the metropolitan and aggregation networks. As in the metropolitan area, carriers still face multiple choices here. There is also the possibility that some network elements cannot really fit within a converged network – the GGSN, for example. Through various active mediation mechanisms, they are providing quality of service allocation or differentiated billing.

At a higher level, management of QoS implementation can become tricky. Most mobile services do not support differentiated IP QoS policy management. A convergence strategy would push that functionality to be managed at the edge of the network. But where?

End users want convergence, carriers want it, and vendors want it. As a consequence, network convergence will definitely happen. It is the future of our industry. •

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Rethinking mobile communication: it's not about bit speed

by Mats Thorén, p. 58

THE INTERNET DOUBLES IN size each year, whereas growth for the mobile industry is slowing and is closer to a mere 5 percent. Even taking into account emerging markets, it seems as if the mobile industry is suffering from a serious growth problem.

Higher data speeds, such as broadband, will not solve the problem, according to Bengt Nordström, chief strategy officer at inCode.

"Broadband is a technical term, implying data speed and how to bring it to the customer," Nordström says. "If you use the word 'internet' instead, it becomes quite clear that there is much more growth, development and innovation in the ecosystem of the internet than in that of the mobile industry."

Nordström feels that the current industrial track for mobile business has run its course, because after trying hard for years, it has not created growth beyond voice and messaging services.

The internet's ecosystem completely separates access and content. All the content is provided by independent players. There is no relationship between the internet provider and the content, service and application providers. Competitive pressure and innovation is the very strength of the internet. To solve the mobile growth problem, we must take the best from the internet and emulate its ecosystem, Nordström says.

Today there seems to be an understanding that the telecom industry should not try to create its own internet-like solutions, but rather rely on and profit from strong brands and the knowledge they represent. Partnerships between vendors, operators and media companies have become the norm.

Changing the operator role towards what is sometimes referred to as the "bit-pipe-provider" role is an old discussion and one that has always been difficult, Nordström says. He considers it to be a profitable and very exciting role, and calls for a more appropriate sounding phrase such as "value pipe" or "smart pipe" to describe it.

Nordström points out that frequency space is still a limitation. That alone, he argues, should make the bit-pipe role a much more interesting part to play for mobile operators than for their wireline counterparts. Whether operators choose to change their roles or not, the internet has already created a quite different business environment.

The dynamism of the internet market has made Cisco the world's largest communications equipment provider – and it is worth noting that 75 percent of its customers are enterprise customers. Today, it is not only operators that build networks, and that should also send a very strong signal.

The whole telecom industry is still suffering from the monopoly days. Each time a price is artificially set, you invite unwanted behavior. Interconnect fees and roaming fees seriously limit the market. Today, only 1 percent of global data traffic is mobile. The lesson from broadband is that it could have been a hundred times more.

Nordström says: "Even if you want to change, the mindset and industry roots make it difficult. Most of the world's leading telecom vendors have little visibility of where the future growth really lies." •

Waving the magic wand

by Bengt Wattenström and Sanjag Kaul, p. 56

TELECOM GROWTH IN developing nations is driven predominantly by mobile telephony. The top of the consumer pyramid has been well served in these countries, with good profits ensuring investors are satisfied with their investment returns. To sustain growth and achieve similar profitability levels, telecom operators now need to adopt new business models. To serve the next wave of consumers – those at the bottom of the consumer pyramid, with income levels of less than USD 2 a day – operators need to have a complete change of mindset, adopting operational models that ensure profitability even when offering tariffs that can be afforded by consumers on such low incomes.

Operators using traditional models to address these users will quickly become unprofitable if costs are not adequately controlled. As the subscriber base expands, subscriber valuations will decline further over coming years. The only way to profitably sustain increasing penetration is to manage costs in a way that improves the margins. The business models described in the article present the clear value proposition for both telecom players, in terms of managing margins, and governments, in terms of expanding their telecommunication infrastructures more quickly, and ensuring lower prices, better quality and a superior end-user experience.

Some of the successful and innovative solutions involve Establish, operate and transfer; Manage capacity; Outsourcing; Hosting; and Partnership framework. These components have already been tested and proven in marketplaces in both developed and developing economies. •