

COMMUNICATION FOR ALL

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White Paper

Ericsson believes that Communication for All is possible through the spread of GSM. Sustainable business is achieved by addressing taxation, business models, affordable phones and operators' total cost of ownership.

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1 Executive summary

Developments in electronics, computers, telecommunications and broadcasting have been rapid and spectacular during the past decade. For many people this has led to a new era of social and economic change. However, more than two-thirds of the world's population does not have affordable access to either voice or data communication.

The United Nations has formulated specific goals aimed at reducing poverty, the "Millennium Development Goals", where the Information and Communication Technology (ICT) sector is specifically mentioned as a sector with enormous capacity to support the goals.

Numerous global attempts to ease the burden of poverty in emerging markets have relied on charity. But charity is not the way forward – rather the local generation of sustainable business is the proven mainstay of positive economic growth, and will have a much greater impact on poverty reduction than charity. By giving everybody the opportunity to take part in the global information society, everyone benefits – from individuals to the society as a whole.

Many people associate the word "digital" with computers, but there is increasing evidence that suggests that mobile phones are the most wide-reaching ICT solution to narrow the digital divide. This is largely due to the ease of use of a mobile phone, compared to the more advanced requirements for using a computer, e.g., literacy or language skills, financial resources and access to the infrastructure required to use a computer effectively. GSM is the technology of choice due to its economies of scale.

Voice and basic data capabilities will be the initial service when introducing telecommunications to emerging markets, although the need for more advanced data services may already exist in some markets. Many basic applications can be realized over SMS, but for institutions such as health authorities, educational institutions and government, more bandwidth may be required.

If mobile communication is to be made available to everybody, operators must find ways to remain profitable while keeping services affordable. Addressing the Total Cost of Ownership (TCO) for operators is imperative. Technical solutions are now available that make it possible for operators to charge low tariffs, while remaining profitable. New business models, such as network sharing between operators, can help reach new users, especially when building network coverage in rural areas.

When providing mobile communication for all the availability of affordable handsets and tax issues can be major hurdles. A number of initiatives are in place to provide ultra-low cost phones for low-spending users, as well as to lower taxes on mobile services.

Ericsson believes in **Communication for All**.

2 Bridging the digital divide

Bridging the Digital Divide is a term often used to refer to the gap between the industrialized world and other parts of the world that do not today have access to communication technologies. Many people associate the word "digital" with computers, but it is becoming increasingly clear that the best way to bridge the digital divide is with mobile phones. An advantage with wireless technology is that it is both faster and cheaper to deploy than fixed technology. Research shows that higher mobile penetration leads to higher Gross Domestic Product (GDP) growth.

There is plenty of evidence that the mobile phone is the technology with the greatest impact on economic development. An Economist article in March 2005 [1] stated: "...their impact is twice as big in developing nations as in developed ones". Results presented in a Vodafone report, issued in March 2005 [2], shows that "an extra 10 phones per 100 people in a typical developing country increases GDP growth by 0.6%".

Numerous global attempts to ease the burden of poverty in emerging markets have relied on charity. While charity might help to address an acute need, it is not a sustainable solution to eradicating poverty, as when the funds dry up, the problem is back. Therefore charity is not the way forward. Instead it is by local generation of sustainable business that positive economic growth can happen, and this will have a much greater impact on poverty reduction than charity.

The United Nations is spearheading initiatives to help eradicate poverty in underdeveloped regions of the world. Through its Millennium Development Goals (MDG) [3], the UN pledges to halve extreme poverty by 2015 and instigate a global partnership for development. This involves cooperating with the private sector to share the benefits of new technologies – especially ICT. Yet without more active participation of the private sector, the MDGs stand little chance of meeting the 2015 timeline. The United Nations Development Program (UNDP) has cited that with the current business models it is unlikely that the goals will be reached before 2147 in many African countries.

Ericsson supports a UN initiative called Global Compact as an interesting platform for bringing companies from various sectors and UN organizations closer together with the purpose of seeking new ways of reaching the MDGs.

Positive economic development is, to a great extent, dependent on well-functioning infrastructure, of which information and communication infrastructures are of great importance. Without timely access to information and communication, individuals, organizations and companies cannot contribute effectively to a well-functioning market economy.

Although digital divides can also be found within developed regions, this paper deals with the areas of the world where telecommunication infrastructure is lacking and/or where people cannot, in general, afford the present offerings.

2.1 Opportunities for users

The value of information is often closely related to its immediacy and relevance, and in these respects the mobile phone is, in many circumstances, unrivalled. Access to information such as local weather forecasts and market prices for crops would, for example greatly assist many farmers around the world who today live without such access.

Access to mobile communication saves time and money. In some areas of the world it is often necessary to travel many kilometres in rough terrain only to discover the person, goods or prices being sought are unavailable. One quick phone call or SMS could eliminate such wasted trips. As bank facilities usually are not accessible for everyone in emerging markets, money transactions can instead be made using the mobile phone.

Mobile communication offers a wealth of opportunities for end users, from improved health care, security and better access to education, to farther-reaching personal communication and access to information and entertainment.

In an all-communicating world the end user benefits of mobile communication are undisputed, and the value of connectivity unprecedented. The challenge is to provide access.

2.2 Opportunities for society

Access to mobile and wireless technologies will help trigger sustainable economic growth in emerging markets.

Through access to information and improved communications the burdens on society, in terms of poverty, corruption and disease, can be reduced. But it would be a fallacy to believe that these problems could be eradicated simply by providing mobile phones to people in these regions.

Mobile technology should be considered an integral part of a larger package of measures needed to address issues such as health, education, law and order and emergency services.

But if the solution is obvious on a theoretical level, why is this development not occurring today? Such development relies on investment – both in capital expenditure and operational expenditure, and also on the elimination of excessive government taxes and regulations, etc.

For operators, the return on investment has been unclear. A number of new stakeholders must be involved, such as governments, financing bodies and non-governmental organizations, if society is going to reap the benefits of mobile technology.

2.3 Opportunities for operators

Mobile communication provides a means of communication that does not require the need to fully tackle the hurdles of literacy and language skills, which are required for the use of computers or other advanced personal devices.

Being able to communicate in one's own language is invaluable. Many small and medium sized businesses can be run using primarily voice communication. Access to wireless telephony with voice as the basic service can therefore give rural and less-developed regions the means to drive economic development from the bottom up. Computers require more resources on many levels and may therefore be an impractical solution at least in the initial stages of providing Communication for All.

Recent socio-economic studies by the UNDP and the Swedish Agency for International Development Cooperation (Sida) in rural Tanzania [4] have substantiated this theory. The studies show that 97% of the population in the villages surveyed knew about mobile telephony and 50% had used a mobile phone. In contrast, 67% did not know what a computer was and only 3% had used a computer. Establishing internet cafes in such areas would most likely be unprofitable. Evidently, there are institutions such as schools and hospitals that more or less immediately would benefit from PCs with Internet access in addition to regular voice communication.

3 Market situation

3.1 GSM spread

Mobile subscriber forecasts have repeatedly been exceeded. In September 2005 the number of mobile subscriptions reached 2 billion, according to the GSM Association. This corresponds to 31 percent mobile penetration worldwide.

The number of subscriptions is predicted to rise to 3 billion in the next five years, with most of these new subscribers living in emerging markets. Asia will show the highest growth in subscriber numbers. These new users will come both from regions within and outside today's coverage areas.

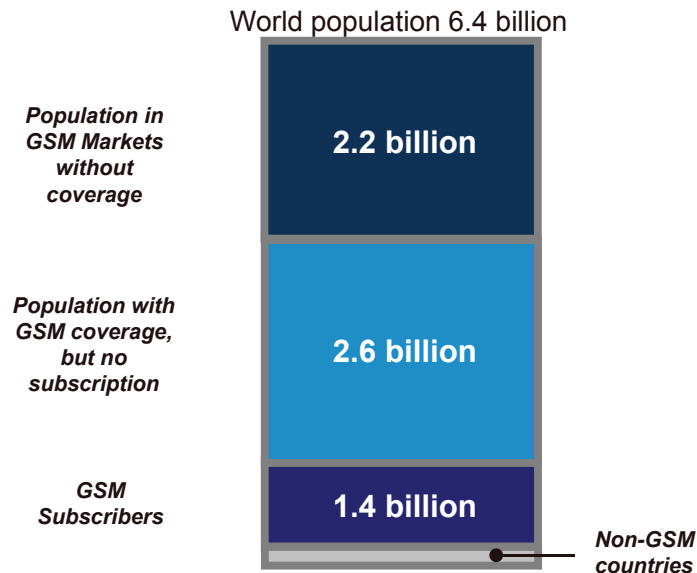


Figure 1) New users will be within and outside today’s coverage (figures from Q1 2005)

GSM is the world’s most widely used mobile system standard, and is currently in use in more than 200 countries across five continents. Almost four out of five mobile subscribers are connected to a GSM network. By the end of this decade GSM is forecast to be the most-used technology, commanding two thirds of the global mobile market.

Conditions in many emerging markets often allow more-or-less unregulated introduction of multiple technologies. However, without a sustainable business model, these diverse technologies run little chance of surviving. Economies of scale will lead to that mainstream technologies will dominate and to further consolidation in the operator arena. Lowered total cost of ownership, in combination with fierce competition, will lead to lower tariffs, enabling more subscribers to benefit from the power of mobile telephony.

3.2 Profitability myths

C K Prahalad (Management Professor at the University of Michigan) states in his book "The Fortune at the Bottom of the Pyramid" [5] that "the dominant assumption is that the poor have no purchasing power and therefore do not represent a viable market." Despite the fact that many of the new users will come from areas with significantly lower GDP than today’s subscriber base, the collective purchasing power of this segment of the population will be enormous.

To highlight the importance of the emerging markets, the following may serve as an example (source World Resource Institute [6]): The world market consists of 680 million households in 20 emerging markets making less than USD 6000 annually per household. Their total household earnings are USD 2 trillion (assuming a household average of USD 3000) and they are willing to spend 5% of their earnings on telecom connectivity. This leads to a potential market of more than USD100 billion.

4 There are barriers...

There are a number of challenges to meet when it comes to providing telecommunication to more users, especially in rural and emerging markets. Success in these markets will require an increased focus on total cost of ownership (TCO) to maintain or improve profitability. TCO is defined as the sum of annual network operational expenses and network depreciation expenses and consists of CAPEX (capital expenditure, such as equipment) and OPEX (operational expenditure, such as costs for sites, personnel and operation and maintenance).

Subscriber costs, lack of infrastructure and competence, affordable phones, regulation and taxation issues must all be addressed in order to achieve Communication for All.

4.1 Costs for subscriber handling

The lower the spending per user is, the more important it is for operators to keep the cost per subscriber down. Solutions for handling small value starter packages and refills, as well as charging solutions must be cost-efficient.

It must be simple for end users to sign up for mobile services and to stay connected. Starter packages containing SIM cards need to be easily available at affordable prices for the targeted user segments. Furthermore, starter packages should be promoted and made widely available.

Pre-paid offerings are much easier to distribute, sign up and activate than post-paid offerings because they require no credit checks or contracts to be signed.

But providing convenient and simple ways for people to electronically refill their subscriptions is vital to retaining subscribers. It must be possible to refill pre-paid subscriptions with small amounts. Consequently, minimum refill values are decreasing and are now below USD1 in several markets.

Successful operators are creative in capturing new users, stimulating use and winning an increased share of consumer spending. But these operators are not only competing with other operators. They must also compete with "fast" consumer goods such as soft drinks and cigarettes. Operators must encourage consumers to spend spare money on telecommunications.

Operators need a flexible, cost-effective and stable charging solution with a scalable architecture. This will enable them to differentiate services for each of their user segments - from low-cost pre-paid subscriptions to service-heavy subscriptions for high-end users. A challenge when providing pre-paid services is to find a charging solution that enables payment for new services in real time to prevent credit overruns.

Low total cost of ownership per subscriber is achieved when operators start small and are able to grow as the market takes off.

4.2 Lack of infrastructure

The major infrastructure hurdles common to operators wishing to build networks in emerging markets include transmission and power.

4.2.1 Transmission

Backbone transmission networks usually do not exist in the rural areas of emerging markets. When networks exist, the price for a leased line tends to be high. Satellite access exists virtually everywhere, but is even more expensive than leased lines. However, in remote areas, satellite transmission is sometimes the only solution available.

4.2.2 Power

Telecom infrastructure in rural areas depends on a reliable supply of electricity. Because rural areas often are outside the power grid, the default solution is to install diesel-driven electric generators.

Alternative power sources are, however, being developed. Renewable energy solutions such as hydropower, solar, wind, biogas and biodiesel are well known and the oil price increase is putting these solutions more in the limelight.

Solutions based on solar power are today limited to small radio base stations, as they cannot generate enough energy to power a base station for large area coverage. Biodiesel on the other hand is an especially interesting option for standalone radio base stations because it can directly substitute fossil-fuel diesel. Biodiesel can be made from a number of fatty-oil-containing seeds. Cheaper electricity would not be the only benefit with this solution. The production process itself would stimulate the local economy, providing new jobs and increasing demand for services.

4.3 Lack of competence

In many emerging markets, there is a lack of local resources with the right education and experience to roll out and operate a network. It is therefore important to create the necessary links between existing learning establishments and network operators.

This will ensure that competences required in the operation and maintenance networks are provided in the right volumes at the right place. This will over time limit the need for external resources and boost the local economy.

4.4 Regulation and taxation

Governments play an important role when it comes to facilitating growth in the telecommunications industry. High customs duties, handset sales taxes, service taxes and inefficiencies in service tariffs are obstacles to growth.

Administrations can enable great advances by encouraging lower service costs and effective and fair competition. Governments also play a key role in ensuring low-cost interconnection arrangements between operators.

License conditions should ensure competition but also enable and facilitate cooperation in areas where general interests like bridging the digital divide is the most important issue.

4.5 Lack of affordable phones

Perhaps the biggest challenge facing operators in emerging markets has been the availability of low-cost phones. If phones are not affordable enough for the mass market, mobile services will not reach potential new users.

Another challenge in some markets is the perception of the mobile phone as a luxury item, rather than a utility. Mobile phones are subject to luxury goods taxes in some countries, which further inflates the price of the terminal. Regulators must start to see the mobile phone as a necessity.

5 ...but it is possible

Despite the barriers mentioned in the previous section, there are a number of possibilities to address lower-spending user segments in emerging markets with telecommunications services. Areas to address include business models, infrastructure, user services and handsets.

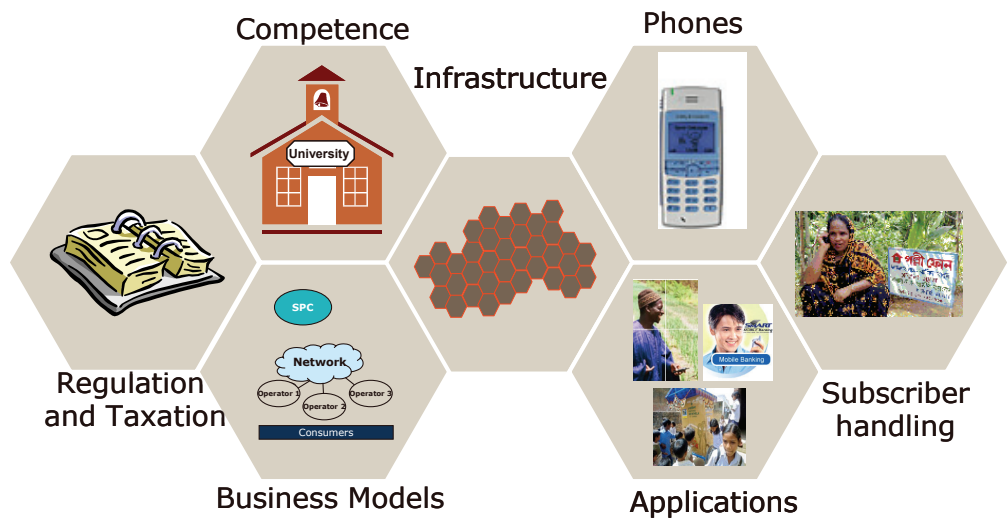


Figure 2) Barriers and enablers

5.1 Changes in regulation and taxation

Regulators can actively support the spread of mobile communications, and India is a good example where a huge subsidy is suggested to increase the rural density of communication. The subsidy would be funded by the Universal Service Obligation Fund, which is created through operator contributions. This proposal is based on sharing of infrastructure and this is an area where regulation is important.

Also the availability of spectrum is of great importance. GSM is now available in the 850, 900, 1800 and 1900 MHz bands, and soon in the 450 MHz band supported by multi-band terminals and infrastructure taking benefit from the huge volume of scale created by the GSM industry.

To investigate how big the taxation hurdle is, the GSM Association commissioned a study during 2005 [7]. One of the findings was that if all sales and customs taxes on mobile handsets and services would be removed, the mobile penetration could increase by up to 20%.

5.2 A new business model

Existing business models, as well as existing product and service portfolios, are often not applicable when addressing new rural areas with few, often low-spending users. Due primarily to costs associated with providing coverage, a new business model based on network sharing should be considered when addressing the needs of rural and emerging markets.

Shared networks, solutions that reduce total cost of ownership, and outsourcing are important considerations in creating sustainable growth and improved quality of life of users. Sharing of infrastructure will probably be the prevailing business model for GSM in the 450 MHz band as the limited spectrum is best utilized in a shared network.

5.2.1 New stakeholders

To reach new areas with primarily low-spending users, co-operation across traditional borders is necessary. In this situation a wider range of stakeholders, including the likes of aid agencies, the international banking community, the UNDP, governments and regulators, can play an active role in helping to eliminate some of the barriers to business noted above. This new cast of characters may have different agendas, but they share the common goal that access to information is for the greater benefit of society.

5.2.2 Shared networks

Many operators find it too risky and expensive to invest in wholly owned networks in sparsely populated areas. Such an undertaking requires substantial up-front investment and revenue forecasts are uncertain.

Sharing network infrastructure allows operators to reduce investments and operational expenses while decreasing the time required for expanding coverage.

Shared solutions can be made application-transparent, so operators are able to differentiate towards subscribers as if they own the entire network themselves. Subscribers can then experience wider, and earlier, availability of coverage and services.

5.2.3 Outsourcing of operations

Outsourcing network operations including expansions is a way for operators to optimize both operational and capital expenditures. Coverage and capacity is delivered to the operator on demand with a guaranteed quality of service and in accordance with a predetermined price model. The benefits of this are:

- Improved cash flow compared with the traditional purchase of infrastructure and implementation of services.
- A pay-as-you-grow model can be made possible by charging as traffic is generated. The operator does not manage the network and subsequently has the opportunity to concentrate on core business.
- Capacity can be adapted to the operators' forecast demand and the operator pays in relation to the capacity it uses, with fees linked to growth.

5.3 Network infrastructure

Mobile networks are no longer built in the same way as they were during the initial phase of GSM. GSM has evolved since the beginning of the 1990s, and volume of scale in combination with technological advances makes it possible to build and operate networks at a substantially lower cost.

This makes it possible to provide cost-efficient infrastructure to match the low spending power of new users in emerging markets. Hence, the cost for producing traffic minutes can be lowered. It is now a viable option for operators to enter this low-spending segment.

Serving new users profitably should not mean compromising on quality. To obtain the lowest total cost of ownership, operators need to take advantage of advanced features. In emerging markets, cost effective entry solutions are needed to deliver coverage in new areas, although taking future capacity growth into consideration. To minimize operating costs, solutions must be easy to introduce, reliable and scalable.

5.3.1 Cost-efficient coverage

The challenge in rural areas is to cover as large an area as possible at the lowest cost. Because the radio network typically represents 70% of the cost of a complete basic mobile network, any savings in this area have a great impact on total infrastructure costs.

The overall cost of the radio network is directly related to the number of sites. Minimizing the number of sites therefore becomes essential. With advanced technology it is possible to reduce the number of sites by 30% to 50% while maintaining the same coverage area.

Each site needs power, battery back-up, transmission equipment, cooling, shelter, antennas and towers or masts, as well as the base transceiver station itself. Other costs include site acquisition, foundation, civil works, integration and acceptance testing and documentation. Therefore, the cost of a site reaches far beyond the pure cost of a base station.

The number of sites needed to cover an area depends on:

- The frequency band used
- The height of the antenna tower
- The topology of the area
- Improvement of downlink and uplink capabilities of the base station and related antennas

Transmission is also expensive, especially in rural areas. But there are techniques for reducing costs, including compression techniques when leasing lines or satellite capacity. Another alternative is to build a wholly owned transmission network using radio links. The sites and towers used by the base stations can be used also for the radio link equipment.

5.3.2 Cost-efficient capacity

Many of the new subscribers will come from urban areas. To attract low-spending users in areas where there is already coverage, the challenge is to provide cheaper minutes. If the cost to produce those minutes is reduced, operators have an incentive to lower the tariffs.

Today there exist solutions that make it possible to increase on-site capacity by up to 400%, using advanced software and flexible hardware. This capacity increase can be achieved with about 85% lower production cost per voice minute as the existing sites can be reused.

5.3.3 Evolution to data services

The tremendous success of SMS shows that voice isn't the only generator of operator revenues. In some markets SMS accounts for up to 30% of the total revenue.

Without GPRS or EDGE, GSM networks can only provide access to data services over a circuit-switched bearer service, meaning a connection is in place for the total duration of a session, regardless of whether data is sent.

The underlying driving forces behind GPRS are wireless IP and Internet technologies. The GPRS solution enables rapid deployment reusing existing GSM network infrastructure, minimizing time-to-service and costs.

EDGE (also known as EGPRS) is the next step in the evolution of GSM. It offers higher data-rate capabilities using existing GSM spectrum. EDGE is a 3G-radio technology that triples the high-speed data communication capacity of GPRS-enhanced GSM networks. EDGE enables operators to provide mobile Internet services over existing infrastructure using an existing GSM license.

Thanks to relatively low investment costs, operators who implement EDGE have a golden opportunity to offer subscribers data services for a reasonable price. Although the initial GSM network primarily is used for voice services, introduction of EDGE capabilities will make mobile broadband a reality where GSM coverage is available.

When even higher speeds are required, and WCDMA licenses can be awarded, the network can be enhanced with WCDMA, and even HSDPA.

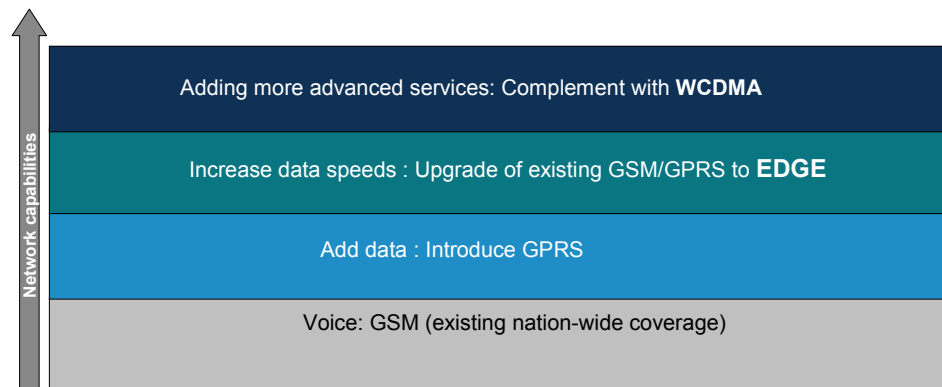


Figure 3) Evolution towards more advanced services

For fixed high-speed Internet access and when cables are available, fixed broadband solutions with DSL is the prevailing alternative. However, in many emerging markets, cables are lacking. Wireless broadband access, based on the 802.16 (WiMAX), technology might in such cases be an option.

5.3.4 GSM continues to evolve

Emerging markets will have mobile networks as their dominant network technology in coming years. Extending the subscriber base to low spending segments puts the terminal price in focus, and here GSM has an undisputable advantage over other technologies. Therefore GSM is the technology of choice for voice and data applications in rural areas.

As ICT alternatives are lacking, this might turn the network evolution models of the past upside down and actually make emerging markets drive the development of new applications, often with local content.

Investments in GSM are investments for the future, and WCDMA will become an important complement, that enables operators to extend their offerings with premium services like high speed Mobile Broadband, Video Telephony etc. This enables GSM operators to evolve and offer a richer service via WCDMA to advanced users without removing the benefits of the GSM terminal price. The GSM Association representing more than 680 GSM mobile operators shows the global strength of GSM. The evolution to adding WCDMA is facilitated by the many synergies between GSM and WCDMA, such as sharing of sites, a common core network, the same applications and common operation and maintenance solutions.

5.4 User services

Relevant value-added services for rural areas in emerging markets cover voice, data and enterprise. The applications should be technically simple and easy to use. SMS and interactive voice response services are most feasible.

Key application challenges include:

- Poverty: ability of low-spenders to pay for mobile voice and data services;
- Literacy: the uptake of information services when a large percentage of the population cannot read or write;
- Dialects: lack of voice recognition services for several dialects, and the cost of a multi-dialect solution;
- Revenue: how to generate sufficient revenue from applications.

Services that improve the quality of daily life are the most attractive. Low end-user service costs are essential to generating growth. The first areas such applications could target are health, education, money transfer and enterprise. Use of such applications may be partly or wholly financed by organizations that directly benefit from their use.

An application, for example, that provides basic health information may reduce hospital workloads while saving end users long and tiring journeys to the hospital. The cost-savings for the hospital may be many times greater than the cost of using the application.

5.4.1 Voice

It is important not to assume that advanced technology is not suitable for emerging markets. Leading-edge applications will probably stimulate subscriber growth in these regions. The following examples describe two voice-steered applications that are successfully deployed today:

- BubbleTalk™ is a "click, talk and send" short voice-messaging service (SVMS or voice-SMS) being used by Malaysian operator DiGi. It's a "talk and listen" messaging alternative to the "type and read" service provided by SMS. It is much simpler to use than many of the voice-mail implementations in service today. It allows users to send and receive voice messages with very few key presses and minimal literacy requirements.
- Bharti Airtel, an Indian mobile operator, launched "Voice Portal on 646", an interactive voice portal that provides services ranging from listening to sports news to downloading ring tones using voice commands. The portal logged more than 16 million minutes in the first 10 months of operation.

5.4.2 Mobile data applications

Mobile data applications may be used to address the main application categories in rural areas:

Category	Application example
Health	Medicine reminders by SMS, basic education and bulletins
Education	Regular basic education by SMS Evolution towards more advanced services push. Parent-school communication
Money transfer	Mobile account transfer, voucher creation and redemption via SMS
Enterprise (e.g farmers, fishermen, local entrepreneurs, store owners)	Commodity pricing, recruitment, and payment for goods.

Figure 4) Application categories in rural areas

Experience indicates that the bulk of revenues will come from basic voice services and peer-to-peer SMS, but an attractive mix of value-added services could provide a significant additional revenue opportunity for operators.

5.5 Terminals

5.5.1 Ultra-low-cost phones

Because of the high cost of mobile phones, it is now common for one phone to be shared by many users. As the cost of handsets falls, what is now a “village phone”, may turn into a “family phone” and eventually become a “personal phone”.

The Emerging Market Handset Programme has been established by the GSM Association with the aim of helping connect the unconnected in emerging markets. Bridging the digital divide will be achieved by combining the supply needs of participating operators in emerging markets and thereby provide economies of scale. This will enable operators to make a profit in the low-spending segment and connect people currently priced out of mobile services. Through this GSM Association initiative, the price level for a simple phone has been reduced to sub USD 30 with availability early 2006.

The prices for both GSM and WCDMA handsets continue to decrease, but specific plans for the ultra-low-cost handsets exist only for GSM terminals. WCDMA terminals are presently much more expensive than GSM terminals and the low price for GSM terminals is a major advantage when using GSM systems to attract low spending users.

5.5.2 Data terminals

Mobile data access can be obtained via the phone, but also via PC cards. Other possibilities consist of deploying fixed wireless terminals that provide a fixed connection but use the GSM network for the access. PCs and fax equipment can be connected to these terminals. These types of devices are ideal for schools, hospitals, police stations, shops, enterprises etc. with a primary need to contact a place rather than a person.

6 Conclusion

While some people sit in an air-conditioned office with the latest pop video playing on their mobile phone, booking meetings with people on other continents via e-mail and checking on goods being delivered from halfway around the globe, others are walking for miles to visit the doctor that may be away or to pick up goods that may not yet have arrived.

Although not a panacea for eradicating the world's problems, mobile communications could provide that first step towards a better quality of life for a sizeable proportion of the global population.

But such a task is not without its challenges. Those who wish to create sustainable economic development must consider the multiple stakeholders involved, the sometimes conflicting agendas and the specific challenges of working in rural areas that lack basic infrastructure.

To deliver communication for all, the tried and tested business models used in developed countries will need overhauling. Current attitudes and procedures must be questioned and streamlined and the appropriate services offered.

Mobile communication must be affordable if the digital divide is to be truly bridged. But Ericsson believes that it is now possible to achieve **Communication for All**.

7 Glossary

CAPEX: Capital Expenditures

DSL: Digital Subscriber Line

EDGE: Enhanced Data rates for Global Evolution

EGPRS: Enhanced General Packet Radio Services

GDP: Gross Domestic Product

GPRS: General Packet Radio Services

GSM: Global System for Mobile communications

HSDPA: High Speed Downlink Packet Access

ICT: Information and Communication Technology

IP: Internet Protocol

MDG: Millennium Development Goals

OPEX: Operational Expenditures

Sida: Swedish International Development Cooperation Agency

SMS: Short Message Service

SVMS: Short Voice Messaging Service

TCO: Total Cost of Ownership

UNDP: United Nations Development Program

WCDMA: Wideband Code Division Multiple Access

WiMAX: Worldwide Interoperability for Microwave Access.

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