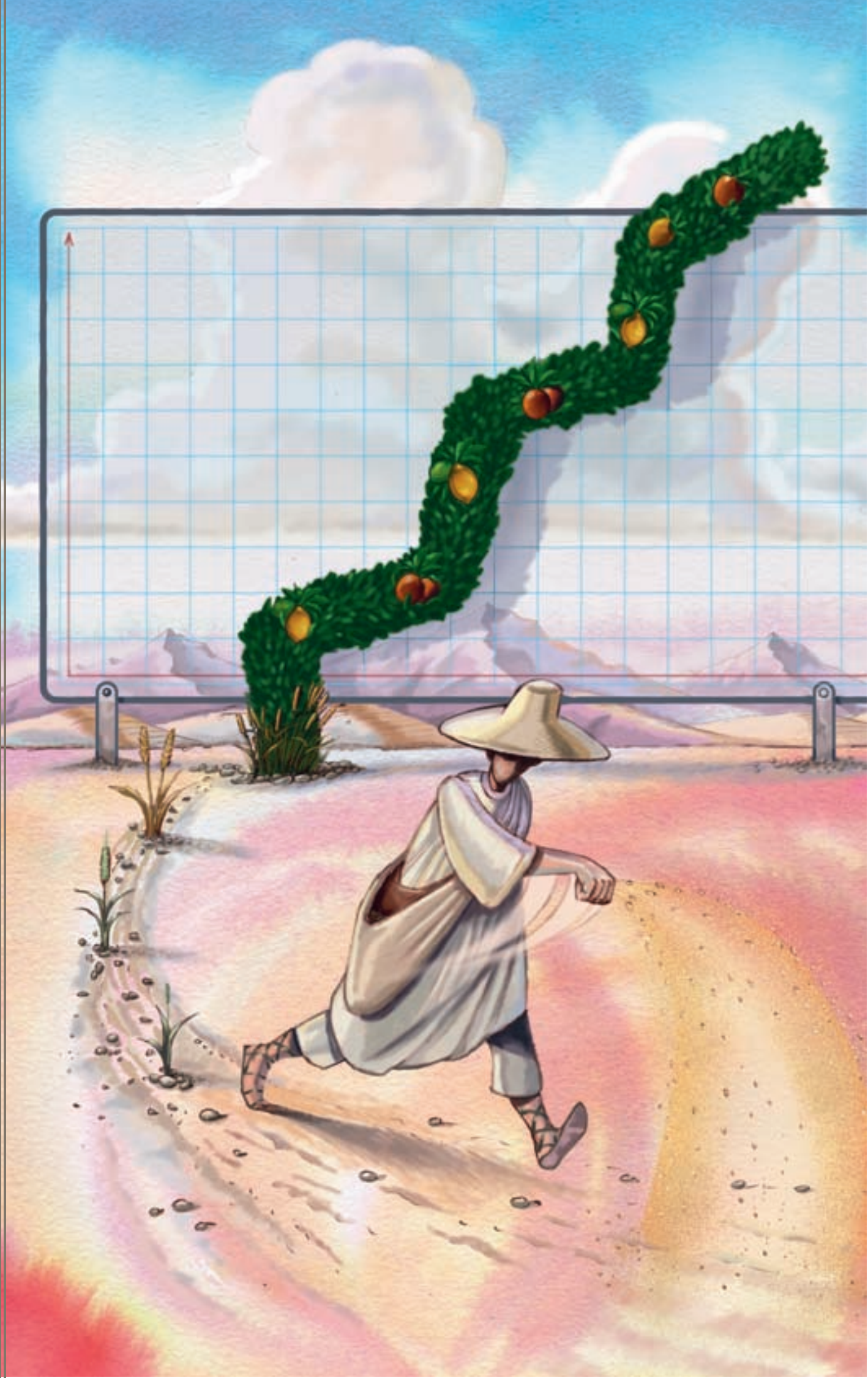


Bengt Wattenström and Sanjay Kaul on
the need for new business models for new markets



Waving the magic wand

It's almost like magic. Growth of telecommunication services directly boosts the economy; the lower the GDP of the country, the higher the correlation. And one thing is crystal clear: if the developing countries are to leapfrog into the information age, we need disruptive business and operations models as well as state-of-the-art technical solutions.



THE CHALLENGE FACING the industry is that, despite the phenomenal growth in telecom penetration over the past few years, more than half the world's population still does not have access to either voice or data communications. A majority of these people lives in far-flung rural regions of developing nations and has an income level of less than USD 2 a day.

Increases in capacity and coverage to reach more users must be based on sound business principles. We need to adjust the traditional business models to address the issue, because those that took us to the first billion subscribers will not take us to 4 or even 6 billion.

Case study: rural Tanzania

Together with the United Nations Development Program (UNDP) Grow Sustainable Business Program and the Swedish International Development Agency (SIDA), Ericsson has taken part in a socio-economic study of several districts in Tanzania. The study involved interviewing people in villages without communications connections. A survey to assess the demand, willingness and ability to pay for ICT (information and communication technology) access and services verified several assumptions, including a clear demand for improved means of communication in poorer areas and an awareness and need for mobile-phone operations.

The Tanzania survey showed

- 95 percent know about mobile phones;
- 49 percent have used a mobile phone;
- 67 percent do not know what a computer is; and
- 3 percent have used a computer.

Rural people, institutions and business owners already have considerable need for communications with the outside world, in particular for contacting relatives in urban areas and for improved business opportunities.

- People already incur considerable costs in time and money for these purposes.
- People want and need locally adapted services, especially money transfer and credit possibilities.
- People are willing and able to spend significant amounts on telecom services.
- People are anxious to have real-time information on market prices of agricultural goods.

Link between communications and growth

The governments of developing countries face a variety of economic choices given the wide range of problems that afflict them – for instance poverty, HIV/AIDS and starvation. Any form of investment has to be based on achieving the highest return on investment. If developing countries are to divert their financial resources towards communications development, they will need a strong business case supported by empirical evidence.

The critical role of infrastructure capital (such as highways, and water and sewer lines) in the economic development of a country has long been recognized. Researchers have only recently identified that communications investment also directly impacts economic growth. In a landmark study, Roller and Waverman¹ showed that investment in telecommunications infrastructure has an impact on the economic growth of countries both directly and indirectly. However, the authors are quick to point out that the effects of telecommunications on economic growth are observable only after a country achieves a certain level, or critical mass. It is important to note that the critical mass needed to influence economic growth is only when teledensity reaches 40 main telephone lines per 100 residents. This means that the effects of telecommunications on economic growth are felt only after telecom penetration reaches a level associated with universal service.

Several researchers argue that there is a strong positive correlation between telecommunications and economic growth in devel-



❖ ...Waving the magic wand

oping countries. Growth in telecommunications generally contributes to economic growth mainly because it generates spin-offs due the multiplier effect. In Nigeria, South Africa, Kenya, Uganda, India, China and Indonesia, for example, growth in telecommunications has led to the creation of a vibrant secondary market. When traveling in Nigeria, especially in the main cities of Lagos, Abuja and Port Harcourt, it is not uncommon to see hundreds of outdoor kiosk retailers distributing mobile airtime.

At the same time, telecommunications growth has led to enhanced employment opportunities for many who would otherwise be without. It has also contributed to the growth of local industries that support providers of mobile telecommunications infrastructure. To some extent, economic growth in developing countries may have been accelerated by the network effects resulting from increased investment in telecommunications infrastructure. Another benefit of infrastructure growth in developing countries is the potential to reduce international call imbalances, leading to more balanced international rate settlements between developed and developing countries.

Key challenges remain

Despite this positive correlation between communications infrastructure and positive telecom developments in developing economies, the main stakeholders still face numerous key challenges, including network coverage and capacity, quality of service, pricing innovation, and operating costs.

Network coverage and capacity

Even though developing nations have invested heavily in telecom infrastructure over the past five years, there still is a tremendous need for the development of network coverage and capacity. In Nigeria and Algeria, for instance, despite enormous subscriber growth over the past three years, there still is a serious lack of network capacity from all the players. The conservative subscriber-growth forecast in both countries is 40-50 percent (compound annual growth rate).

Quality of service

Maintaining the quality of service across developing and underdeveloped nations is seen as a fundamental challenge. Downtimes and voice quality are poor and need to be addressed. The networks

across the African continent need to be optimized and better utilized without affecting quality. There has to be a shift from capital expenditure to operational expenditure to make sure investments are fully exploited.

Pricing innovation

Telecom service pricing and tariffs used to be fairly simple, with mobile operators differentiating only between pre-paid and post-paid subscriptions. As competition intensifies and penetration levels increase, however, the pricing packages must become more sophisticated. Greater focus on customer care and the evolution of billing platforms is helping increase average usage and improving customer retention in African markets where 10-15 percent of the customer base had been changing operators each year.

Operators need to emphasize the following attributes while rolling out new service-management and revenue-growth strategies:

1. Customization – the ability of a service package to meet the needs of the subscriber, and to meet the subscriber's usage patterns and affordability level.
2. Simplicity – the ability of the package to offer clear and easily understood pricing and prices, allowing easy evaluation.
3. Cost savings – value for money in markets where mobile services are considered expensive.

Operating costs

Telecom service operations are inefficient compared with operators in the developed parts of the world. The ratios for operating cost to quality level are poor. Despite the poor quality levels, the average cost of management is high and operating costs are also high. The reasons for this are:

- Network capacity and coverage – operators face high costs in reaching people and rolling out telecom networks in remote areas where traffic and number of users are low. This results in slow return on investment.
- Lack of local competence – a lack of telecom and mobile operations experience in the region leads to a dependence on expatriate worker skills.
- Inefficient operations frameworks – a lack of proven process frameworks and operations tools results in reactive maintenance, which in turn worsens network downtime, customer satisfaction, quality of service and other aspects, and increases the cost of retention and hence the overall cost of management. Staff costs measured against



productivity are high and the number of employees per subscriber varies among operators by as much as 300 percent.

- High customer churn – due to the predominantly pre-paid customer base, churn rates are generally much higher than the average in developing markets. However it is difficult to put specific figures on the actual average churn rates across the continent's different markets. For instance, South Africa experiences Africa's highest churn rate, ranging between 30 and 40 percent among the three mobile operators. But if we take a rough estimate, the average churn across the continent should be in the range of 20-25 percent. This has a huge impact on cash flow. Operators are trying hard to reduce churn rates by implementing retention strategies, which also impacts the cost of management.
- Inadequate financing solutions – the main obstacles to increasing penetration levels are high start-up costs, which include the cost of handsets, and operator ability to reach and service the end user through network coverage and capacity, marketing, sales channels, customer care, and overall quality of service. Operators need to come up with innovative financing options and schemes, such as subsidized handsets, deferred payment schemes, better customer care, and network coverage and quality.
- High power-related OPEX – the more remote a site, the greater the challenge of getting power to it. Energy-efficient solutions are needed to drive down opex (operational expenditure). When cost pressure is high, it can be tempting to go with a low-capex (capital expenditure) solution. Fewer sites, combined with energy-efficient products, can be proven to result in lower total cost of ownership.

More bang for the buck

Business models should promote affordability and sustainability, and fit the needs of a wide range of end users. Recent statistics from the International Telecommunications Union (ITU) suggests that average revenue per user (ARPU) is rising in some developing economies of Africa. ARPU has long been seen as a key performance indicator. This will probably change, however, as more capacity and coverage are added in underserved areas of developing countries. Traditional indicators will then be superseded by more traffic-based ones. In developing countries, the existing network capacity is already overburdened and a shortage of network capacity curbs growth prospects. New state-of-the-art infrastruc-

ture and innovative financing solutions are needed to satisfy demands.

The solutions described below have been tested and proven in other marketplaces both in developed and developing economies.

Network sharing

By sharing networks, stakeholders can also spread the financial risks. Entry hurdles for operators are lower, as is the total cost of ownership. Operators can thus more fully focus on subscriber acquisition, customer care, and their service portfolio. To accommodate network sharing, a special purpose company (SPC) is established that owns the infrastructure and a license to run the traffic. The operators pay for capacity usage and the SPC outsources all operations and maintenance to the supplier.

Site-sharing

In underserved markets where network sharing might not work, operators can share sites to reduce costs and provide affordable mobile communications. All aspects of a radio site, apart from the radio components themselves, are shared (civil works, tower, power, shelters, batteries, feeders, antennas, and so on). Here too, an SPC could help balance out the costs.

Capacity growth

The capacity growth solution maximizes site capacity. In a spectrum-constrained network (due to a lack of foresight or bad planning), capacity can be increased only to a certain threshold. The use of frequency-load-planning (FLP) software increases capacity beyond this threshold.

Coverage expansion

The coverage expansion solution increases the cell range of a site, meaning that fewer sites are needed – as many as 30 percent fewer sites. Besides less infrastructure, this translates into significantly lower power consumption. This model could be used where the topology is favorable and the operator does not want to share infrastructure.

Sustainable energy solutions

In areas where there is no power grid or power is unreliable, wind, solar and biofuels (based on locally generated power) can provide viable alternatives to fueling telecom sites. In addition, a local net-



work powered with biofuel has the added benefit of contributing to the local economy by providing local job opportunities for farmers. This is a good way to involve local communities in the operational phase of a mobile communication project. In some cases biofuels can be produced more cheaply than traditional diesel, and can reduce carbon dioxide emissions by 80 percent.

Local switching

For subscribers in very remote areas blocked urban centers by jungle or mountains, the only feasible solution might be to use satellites to transmit data from the base station back to the base station controller. Installing microwave hubs would be costly and time-consuming – imagine constructing microwave towers in the middle of dense jungle. Although satellite transmission costs today are high, the use of local switching technology (where calls within the local vicinity are routed directly from one base station to another and not via satellite) can reduce the cost by 50 percent (assuming local calls comprises half of all calls).

Partnership framework

Access to best practices, availability of world-class competence from the start, and guarantees on the outcome: these are the key

building blocks of the partnership framework business model. Via a partnership, the operator brings in an experienced supplier who understands all the necessary dimensions of the telecom services business. The partnership model is based on a service-level agreement that defines the outcome of the relationship and value.

The key benefits of the partnership frame model are:

- access to best practices and processes;
- access to global benchmarks;
- availability of competence on demand;
- synergies between operator and supplier, ensuring efficient use of people and resources;
- yearly guarantee for efficiency improvements;
- quality and time guarantees regarding output;
- improved control over performance; and
- shorter time-to-market.

¹ Telecommunications infrastructure and economic development: a simultaneous approach *The American Economic Review*, Vol. 91, No. 4 (Sep., 2001), pp. 909-923

the authors



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