



TRENDS IN
TELECOMMUNICATION
REFORM
2003
PROMOTING
UNIVERSAL
ACCESS TO ICTs
PRACTICAL TOOLS
FOR REGULATORS

EXECUTIVE SUMMARY



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TRENDS IN TELECOMMUNICATION REFORM 2003

Promoting Universal Access to ICTs

Practical Tools for Regulators

Executive summary



Septembre 2003

INTERNATIONAL TELECOMMUNICATION UNION

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TRENDS IN TELECOMMUNICATION REFORM 2003

Promoting Universal Access to ICTs

Practical Tools for Regulators

1. Introduction

ITU/BDT is pleased to present the fifth edition of *Trends in Telecommunication Reform* which is being published on the occasion of ITU TELECOM WORLD 2003. This year's edition of *Trends* focuses on practical tools for regulators to promote universal access to information and communication technologies.

This theme is of particular importance this year as world leaders convene for the first phase of the World Summit on the Information Society (WSIS) in December 2003 and affirm their commitment to create a global information society in which all citizens of the world are included.

In keeping with the tradition established in earlier editions, *Trends 2003* includes one chapter highlighting global market trends. The other chapters explore universal access/service policies; the role of sector reform in achieving universal access – building on the experience of competition in mobile services; creation and operation of a universal service fund (USF); the role of minimum-subsidy auctions; access strategies through public facilities; and how regulators can promote rural access through innovative wireless solutions. The report also highlights USF success stories.

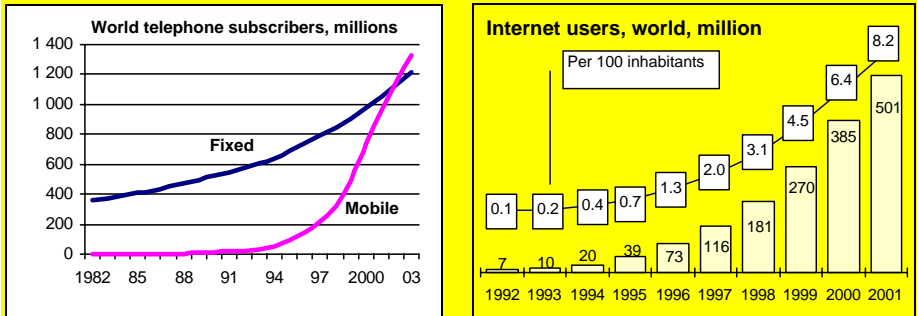
A competitive market, coupled with effective regulation, can go a long way toward ensuring *universal access* – widespread availability of telecommunications or ICT service – and even beyond that, to enabling *universal service* – that is, the availability of telecommunications or ICTs in the home. Access to telecommunication services has always been the target of universal access/service policy. Recently, with the growth of the Internet and of broadband access service, governments are exploring ways of incorporating Internet access in the basket of services included in their universal access/service definitions. As the chapters in this year's *Trends* illustrate, the first steps toward a universal access/service policy should be policies to harness the power of markets, on a sustainable basis, from the smallest entrepreneur up to the largest multinational carrier.

2. What’s going on in the ICT sector?

Since mobile cellular services became commercially available in the early 1980s, they have advanced beyond imagination in terms of coverage, services, technology, handsets and regulation. The number of mobile subscribers has also outpaced the number of fixed-line subscribers. By the end of 2002, there were 1.155 billion mobile cellular subscribers around the world, compared with 1.129 billion fixed telephone lines. One in five people around the world now has a mobile phone – up from one in 339 in 1991. And many of these new subscribers are in developing countries given that mobile penetration in some developed markets has already approached 100 per cent.

Figure 1: What’s going on?

Number of worldwide fixed and mobile telephone subscribers; Number of Internet users



Source: ITU World Telecommunication Indicators Database.

Internet and broadband

The Internet has grown at an astounding pace. At the beginning of 2003, there were an estimated 580 million Internet users around the world. Practically every country in the world is now online. The explosive growth of the Internet is driving demand for access at higher speeds. Broadband solutions are increasingly available for both wired and wireless technologies. Success factors vary from country to country and include platform-based competition (cable modem, DSL, fibre and wireless), development of innovative broadband technologies and applications, and affordable pricing such as flat-rate

packages. Factors that can stifle broadband roll-out include continued monopolies and low levels of competition, cross ownership between telephone and cable TV networks and caps on data that can be downloaded under flat-rate pricing packages.

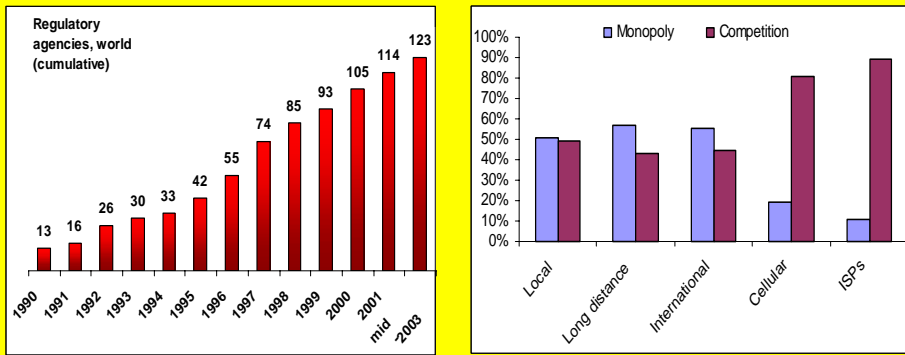
A new technology burst onto the wireless scene in 2003: Wi-Fi, or Wireless Fidelity. Its advent may well herald a new era for the ICT sector. Suddenly, inexpensive and easy-to-use subscriber equipment, often employing “free” unlicensed radio spectrum, can open the door to wireless broadband Internet access for the mass market. This new technology holds promise for rural and remote access because of its low-cost potential.

3. Regulatory developments

A vast majority of countries worldwide have reformed, or are in the process of reforming, their telecommunication sectors through the review and adoption of new legislation to adapt to the rapidly changing communication environment. They have done so by opening some market segments, if not all, to competition, allowing private participation, and establishing a national regulatory authority. As of mid-2003, 123 countries worldwide recognized the importance of establishing a regulatory authority to foster competition in the ICT sector in a fair and transparent fashion. As the development of ICTs is making the convergence of different types of network platforms and services a reality, more and more countries are responding either by merging their telecommunication and broadcasting regulatory authorities or improving coordination between various agencies involved in the ICT sector. Additional functions and tasks are required from regulators as a result of convergence, liberalization and market growth, including dispute resolution and consumer protection. At the same time, regional initiatives are taking place worldwide to harmonize national ICT legislative frameworks and work together toward the ultimate goal of providing universal access if not universal service to all citizens of the world.

The liberalization of telecommunication markets through the introduction of competition is changing the way countries approach universal access and service policies. This is due, in part, to the fact that services are being provisioned at a more rapid pace, prices are falling and new and innovative services are being introduced.

Figure 2: The Boom for Regulators (1990-2003) (figure on the left) and Status of Liberalization (2003) (figure on the right)



Source: ITU World Telecommunication Regulatory Database.

4. Universal Access and Service: What role for regulators and policy-makers?

Regulators and policy-makers have a critical role to play in ensuring that universal access/service goals are reached. One of the first steps is to set measurable targets. The first qualitative measurement usually stems from an examination of current market access figures. Regulators measure the difference between the current service penetration and the achievable level of penetration in a liberalized market. This is often termed the *market efficiency gap*. The market gap can be addressed, and even closed, through a solid sector reform policy framework. It does not necessarily require direct financial investment or subsidization. In addition to considering the market efficiency gap, it is important for regulators and policy-makers to look at the true *access gap*. This has been described as the difference between the population without service and that with service – even under efficient market conditions. The access gap concept posits that, even in the most efficient markets, a portion of the population may simply not be able to *afford* market prices. *Trends 2003* identifies options for regulators in addressing the access gap.

How have regulators sought to implement national access targets and affordability goals, once these have been defined? Generally, governments have imposed two types of universal service obligations (USOs). The first is a general obligation to provide service to all customers willing to pay regulated

rates for service. This obligation may be limited to certain geographic or population groups, such as a requirement to serve all urban areas, or to serve rural areas above a certain population. In addition, policy-makers and regulators have imposed obligations to extend certain types of designated services to a pre-specified number of subscribers or localities. These are referred to as roll-out or network build-out obligations, and are often incorporated into operators' licences.

The funding of universal access/service support schemes often requires some form of regulatory intervention. On one hand, governments can impose performance requirements or levies on operators, essentially directing them to pay the costs of providing universal access or universal service, either through rate mechanisms or through contributions to a special universal service fund. On the other hand, governments can provide incentives for carriers to provide universal access/service on their own, such as tax breaks or reduced licence fees offered to carriers that extend their networks or improve services in target areas. This policy choice, between setting mandates and providing incentives, is often captured in the term "pay or play". That is, a carrier can either pay to support universal access/service or undertake to provide it itself.

Universal access/service policies are often premised on the assumption that the provision of service in rural and remote areas is expensive and, therefore, unprofitable. They are further based on the idea that low-income users will not be able to afford access without some assistance from the government. This report demonstrates that, in many cases, untapped rural and remote markets can be surprisingly vibrant given appropriate regulatory conditions. The economic potential of rural markets can be measured not only by outgoing call revenue, but also revenue from calls terminated to new subscribers in rural areas. The viability of rural markets is linked to effective regulatory conditions. Regulators, for example, must ensure that rural operators do not face excessive licensing fees and are given flexibility in choosing appropriate technologies to provide quality service to rural populations.

Trends 2003 examines the key steps that governments can take to improve market efficiency through regulatory reform. It demonstrates how the introduction of competition in the mobile sector has benefited universal access efforts, and identifies which lessons from the mobile sector's growth can be more widely applied. The introduction of competition in the mobile sector has greatly reduced – and perhaps nearly eliminated – the universal

access problem for the urban poor in many developing countries. Mobile service has had a considerable impact on low-income users in rural areas, as well. The effect stems in large part from the availability of prepaid services, coupled with the development of mobile payphone services. Moreover, the development of competition in many mobile markets has forced down prices for end users. Finally, the ability of some mobile-phone users to send inexpensive SMS (short message service) messages provides an e-mail substitute in many developing countries where PC penetration is low.

The lessons learned from the mobile experience can be applied more widely. Reducing regulatory barriers is the cornerstone of any effective universal access regulation package. Such effective regulation packages include promoting fair interconnection and flexible tariff regulation, fostering public access and resale, licensing practices that enable operators to choose the most appropriate and cost-efficient technologies and minimizing regulatory fees and costs. *Trends 2003* explains why asymmetric interconnection regimes – providing higher termination rates for calls into rural areas than in urban areas – are of particular importance to rural operators. Since rural operators' income is largely based on incoming calls, asymmetric interconnection rates affect whether they will be financially viable. And, to the extent that rural operators seek government subsidies to provide services, fair interconnection rates can actually reduce the size of such government subsidies.

Box: Nigeria's GSM Umbrella People

Nigeria is Africa's most populated nation with some 124 million inhabitants in 2002. Until August 2001, Nigeria had one of the lowest teledensity rates in the world. In February 2001 the government awarded three 15-year mobile cellular GSM licences for USD 285 million and the rise in the number of mobile subscribers has been nothing short of phenomenal. By December 2001, there were close to 400 000 GSM subscribers. The mobile operators managed to provide access to almost as many telephone subscribers in four months than had been installed in 40 years since independence (there were some 540 000 fixed lines at the end of December 2001). Growth has been relentless, reaching two million subscribers by March 2003. Mobile coverage was initially limited to Lagos, the largest city, and has now spread to 219 out of 550 local government areas. According to current plans, there will be some four million mobile subscribers by the end of 2003 and coverage is expected to be close to half the population.

Nigeria's business-friendly legal and regulatory environment has been cited as one of the key factors contributing to growth and investment in Nigeria's telecommunication sector. Although handsets and prepaid cards are expensive, service is being extended to those who cannot afford a mobile handset and prepaid card through "umbrella people".

Today, on countless streets in numerous Nigerian towns and cities, the GSM "umbrella people" are plying their wares. They are resellers of GSM wireless service – most of them young women who have settled into the business of selling phone calls, earning a high level of financial independence in the process.

Almost every Nigerian street is now decorated with umbrellas marking the stands operated by makeshift GSM resellers – thus giving these entrepreneurs their nickname: "umbrella people". They don't need to rent shops and, in most cases, permission to use the public space is unnecessary (or at least not sought). All they need is an umbrella, a plastic table and some chairs – and, of course, a Subscriber Identification Module (SIM) card and handset – and they are ready for business.

These impromptu businesses began when mobile service subscribers, who were able to obtain SIM cards and handsets, realized they could augment their meagre incomes by turning their phones into business assets. They could defray the cost of prepaid services (which can represent a substantial up-front investment). They could also turn a profit on GSM service resale, particularly if they could maintain a lucrative location at a prime intersection or other public location with a large flow of traffic. At this point, GSM resale has come to be a viable mode of self-employment for hundreds of young people who have to contend with the hard facts of a poor economy.

One interesting technique that has developed among the umbrella people is to procure handsets and subscriptions to each of Nigeria's three mobile service providers, then hire "subcontractors" (often young boys or girls) to operate each handset, tripling the potential returns.

While there are sometimes technical problems and unruly customers, the roadside GSM services can be lucrative, providing at least the daily income needed to keep on with life. Umbrella people reportedly have been able to exhaust two to three MTN prepaid cards, each valued at roughly USD 11.60, in a day, depending on the location. Umbrella resellers can net as much as USD 15.40 in a single day – in a country where an employer might pay USD 38 a month.

Critics of GSM services in Nigeria have frowned at the high tariffs and substandard services rendered by operators. But there is no doubt that GSM has assumed a role in providing universal access in Nigeria, while also appearing to give low-income Nigerians an avenue for gainful entrepreneurship.

Source: ITU (background on Nigerian market). Umbrella People text adapted from an editorial in the *Daily Trust*, Abuja, Nigeria, 29 April, 2003.

5. Tool kit

Trends 2003 includes three chapters that form a tool kit for policy-makers and regulators addressing the access gap that may remain even following sector reform. On the financing side, governments can draw upon a wealth of experience from countries around the globe in setting up and administering specialized universal access/service funds. The tool kit also examines how funds can be used, in conjunction with minimum-subsidy competitive auctions, to finance public telecommunication access facilities in rural areas, and explores policy and regulatory options to foster and support telecentres as key resources for community access to basic and advanced ICT services.

This tool kit is based on documents originally drafted and presented as telecommunication policy and regulatory models. They were prepared as part of a joint effort by the International Telecommunication Union and the Commonwealth Telecommunications Organisation to offer guidelines on universal service funds and related mechanisms.

Trends 2003 also includes a series of valuable annexes, including one that analyzes the results of minimum-subsidy auctions in Chile, Peru and Colombia demonstrating that operators frequently bid and were awarded lower subsidies than the government had allocated for new rural public payphone projects. Another annex describes illustrative benchmark consumer rates and interconnection charges for projects financed by competitive auction mechanisms. In addition, there are annexes describing the universal service fund experiences of India, Jamaica and Malaysia.

6. Are new wireless technologies the universal access solution?

Trends 2003 further examines what a growing community of technologists, public-policy officials and telecommunication practitioners foresee as a revolution in rural universal access. This revolution will be founded on a new suite of wireless technologies such as WiFi, matched by supportive public policies and business approaches, that can provide Internet access and voice service cheaply to rural and under-served communities. New and creative enterprises can make rural and low-income markets profitable, affordable, sustainable and served in ways that meet national and local development objectives. But this also requires innovation and creative business and public policies. The report includes a simple economic model that summarizes and underlines how sensitive profitability is to conditions in the technological, business and policy environment.

Figure 3: Connectivity in Wireless Network

This illustration shows a collection of radios and antennas illustrating wireless backhaul, WMAN and WLAN deployments.



Source: Kaushik Gosh.

We need to think of ways to bring Wireless Fidelity (Wi-Fi) applications to the developing world, so as to make use of unlicensed radio spectrum to deliver cheap and fast Internet access.

Kofi Annan
United Nations Secretary-General

7. Conclusion

Regulators and policy-makers find themselves on the cusp of a new era. For the first time, the combined forces of competition policies that promote market entry, incentive regulation and new technologies promise to promote digital opportunities for all. This report is designed to assist those governments eager to use all the tools at their disposal to meet their national ICT development goals.

It is to be hoped that, in exploring these issues and creative responses, this report will be a catalyst for further innovation and experimentation, through sharing of experiences and approaches among regulators and other telecommunication professionals worldwide.

Trends in Telecommunication Reform 2003 – Executive Summary

The publication will be presented in Geneva at ITU's Global Symposium for Regulators, scheduled for 8-9 December, 2003. This symposium will be the fourth annual gathering of regulators from around the world, attracting regulators and policy-makers from every region. The authors of each chapter will present their findings and discuss key issues with regulators during panel discussions on the topic of universal access/service.

For more information on this report and other regulatory activities of ITU, consult <http://www.itu.int/ITU-D/treg/>.

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