ITC: Public policy must be well-aimed, directly at the target

Few areas in the contemporary economy have been so important for the development of nations as information technology and communications (ITC). The British magazine *The Economist* reports that, according to a World Bank study, 10% more penetration of mobile phones raises GDP by 0.8 percentage point.

Telecommunications and information technology make it possible for businesses to connect their entire supply chain, nationally and internationally, making possible more structured management. But the most interesting ITC benefits relate to the provision of autonomous services by plumbers, locksmiths, electricians, and all sorts of small entrepreneurs who use prepaid mobile phones or, when available, the free Internet to communicate with customers and suppliers. There are countless stories about how the productivity of low-income workers has been enhanced by using the phone, ranging from farmers in Bangladesh, India, to fishermen in Santa Catarina, Brazil — the fishermen use their phones to exchange information both on the location of schools of fish and on prices in local markets.

It is this powerful and pervasive help to economic agents that makes ITC revolutionary and that is transforming the business model of billions of people worldwide. Through telecommunications, especially the mobile phone, isolated populations otherwise without contact with the rest of their country have managed to become active in the global economy. This phenomenon has a crucial role in terms of social inclusion and improving income distribution throughout the world. The cumulative impact of ITC for medium and large enterprises and individual entrepreneurs is to boost productivity in the economy as a whole, and therefore GDP growth.

Regulation — In Brazil, the state sets the rules within which free enterprise works to meet the communication demands of society. Public policies should be crafted so that Brazilian society can fully exploit technological innovations. Respecting the social and cultural values of the country, Brazil cannot afford to waste ITC solutions that facilitate economic and social development.

In a dynamic, complex, and changing sector like ITC, defining the guiding principles is much easier than implementing them. Nobody can deny the importance of setting targets to eventually reach universal access to ITC. The problem, however, is to define what those goals should be within an appropriate, realistic, and pragmatic view of the possibilities and limits of each ITC product and service.

We all agree that Internet access is important, but are we talking about voice access, dial-up Internet, broadband, or what? We must also define the target audience. Even though in principle the idea is universal access, the budgetary reality requires that the policy

maker be selective. Often the solution is to start with programs designed to make access available to groups rather than individuals. So should the focus be, for example, families registered in the Family Grant program (Bolsa Familia)? small businesses in locations with poor infrastructure for broadband access? residents of rural areas? The key question, therefore, is where will access to certain ITC services bring significant advances in welfare and productivity?

History — In retrospect, the world of telecommunications in the 1990s was simply one-way transmission of audio and video and two-way voice service: broadcast radio and television, and fixed and mobile telephony. Given that technological reality, Brazilian public policy was directed to providing the same services to more of the population by, for example, expanding the coverage of radio and television signals. Also, because voice service coverage was insufficient, Brazil opted to privatize state-owned telecommunication companies Telebras and Embratel.

There was no doubt about the need to expand the fixed telephony infrastructure; after all, there was a shortage of telephone lines. Private fixed telephony companies were required to invest in infrastructure that complied with the General Target on Universal Access (PGMU). PGMU required that by the end of 2005 the companies would have to provide, when requested by the user, within a week, individual access to fixed telephony in all cities with more than 300 inhabitants. There were also targets for installation of collective access. Phone booths had been installed in all towns with more than 100 inhabitants.

A first problem with these targets was that in practice the demand for the service was not in proportion to the ambitious public policy. In fact, although there was indeed a shortage of telephone lines in the mid-1990s, the monthly subscription charge for access, about US$20, was too expensive for many Brazilians. According to the National Agency of Telecommunication (Anatel), in almost 9% of locations with 300 to 600 inhabitants where expensive fixed telephone lines were installed, there was no request for a single line, and in 30% no more than four lines were requested. Clearly, in addition to the size of the town, universal access policy also needed to take into account population income, urbanization, and pricing of the service. In fact, if at first the targets may have made sense, with the passage of time they proved to be inadequate. This lesson underscores the need for frequent revision of ITC public policies.

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The great revolution in ITC, however, was the unexpected and spectacular popularization of mobile phones, especially prepaid phones. Consider the evolution between 2003 and 2008 of the penetration of fixed and mobile telephony in classes C, D, and E, which represent almost 50 million households — 86.5% of the total. In 2003, 57% of the households in these three classes had at least one private access phone, fixed or mobile. By 2008 this figure had risen to 80%.

Yet during the same period fixed telephone units actually declined from 45% of households in 2003 to 39% in 2008. The decline was more than offset by the increase in mobile phone penetration, from 32% to 73% in classes C, D, and E. Thus, regardless of any government plan, tangible universal access is being brought about by the explosion of mobile telephony. The impact on social inclusion is clear: 46% of households in class E and 37% in Class D now rely on mobile phones, compared to only 13% of Class A.

Future — In a dynamic area like ITC, technological evolution raises new challenges for public policy. Currently, the country is faced with the question of spreading, even possibly making universal, broadband access to the Internet. In fact, high-speed Internet is an important tool for modern citizens, both for their well-being in terms of consumption, leisure, culture, and information and for increasing their productivity. In Brazil, only 5 of every 100 people have such a service, according to a recent report in the newspaper *Valor Econômico*. Brazil compares well to countries with similar income per capita on Internet access and broadband, but certainly there is much room for progress.

Giving Internet access to every school sounds like an appealing political slogan but is not necessarily a step in improving the quality of education in Brazil — though that should be the priority of the national public agenda.

Three major government programs currently address the issue of broadband access: the Fund for Universal Access to Telecommunications Services (FUST); the option to release telephone companies from the target of universal access to fixed telephony in exchange for free access in schools to high-speed Internet and investment in broadband infrastructure; and the National Plan for Broadband network.

FUST was established by Law No. 9998 in 2000. Although there have been some financial contributions to the Fund, problems of various kinds prevented full allocation of the resources the law defined. FUST currently has approximately R$ 7 billion [US$4 billion]. The National Congress is now considering a bill that would not only release financial resources for FUST but also give it new directions so that it can financially support programs of universal access to the Internet. Part of the money from FUST will go to low-income Brazilians as a subsidy to pay phone bills. The idea would be to create a social tariff like the one for the electricity sector. In this case, the focus would be effective universal voice service.

The fixed telephony companies must also invest in infrastructure to permit access to broadband at the headquarters of all municipalities to support the Broadband Program in Schools. The project, which will be implemented in 56,685 public schools starting in December 2010, has three areas of action:

- Installation of computer laboratories as part of the National Program for Information Technology in Education (Proinfo).
- Internet broadband connection; the carriers will provide free connection to broadband for schools by 2025, upgrading the speed periodically.
- Training of teachers, who will be offered distance learning courses supervised by the Department of Distance Education of the

Ministry of Education (MEC). According to data from Anatel, 56% of the 64,879 urban public schools in the country have so far benefited from the Broadband Program in Schools. The goal is to connect 80% by year-end.

Details of the National Plan for Broadband network were reported in a recent article by Cristiano Romero in the newspaper *Valor Econômico;* the goal is to implement a state fiberoptic network of 31,448 kilometers, connecting 4,245 cities and reaching 162 million people. The article contains a complex discussion on the institutional arrangement that will support the network, which may even involve use of the former state-owned holding company, Telebrás.

In the three projects mentioned, policy makers should keep in mind the lessons of the first attempt to achieve universal telephony in 1990s, recognizing how mobile phones have since displaced fixed phones. Whether Internet access for all schools in Brazil should be a priority must be analyzed thoroughly in terms of costs and benefits. We have to be clear about the effective gain in terms of improving teaching, since it is not yet clear that ITC is an essential tool of education in the early stages of learning. It is also necessary to determine whether access is primarily for teachers or students or for both, and what each can gain. It is important to know whether teachers are really prepared to use the computer, both for their own tasks and as a teaching tool. Another question is whether there exist educational packages on the Internet that schools could use.

Without all this preparatory homework, giving Internet access to every school sounds like an appealing political slogan but is not necessarily a step in improving the quality of education in Brazil — though that should be the priority of the national public agenda. This is an expensive program, and there are other possible uses for public funds. One example is "telehealth" — medical care at a distance. Taking advantage of the English proficiency of its population and its low labor costs, India has become an important center for telehealth for patients in the United States. As in the case of Internet access to schools, telehealth without detailed plans and objectives and careful cost-benefit analysis, however, risks wasting valuable public funds.

When it comes to investment in a national broadband network, the International Telecommunication Union (ITU) estimates that by mid-2011, the total number of subscribers to mobile broadband will be equal to fixed broadband, about 600 million.

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The Brazilian government should track this evolutionary process to avoid waste.

Public policy in a sector like ITC in which paradigms are often broken needs special attention in two respects: First, as technology speedily evolves, new services are often introduced. It is therefore crucial to prepare a program, carefully evaluate the target audience, and decide what kind of services will be offered. Second, technological changes can make ITC policy obsolete, which means that ongoing programs must be reviewed repeatedly. In the whirlwind of changes and advances in communications and information technology, public policy must be well-aimed, directly at the target.