

## **“Achieving Universal Access through Liberalization, Regulation, and Deregulation: The Case of the Philippine Telecommunications and ICT Sector”**

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### ***Abstract***

Information and Communications Technology (ICT) has the potential to facilitate economic development and aid in the delivery of social services. However, securing access to basic telecommunications and ICT service in the rural areas is still a huge challenge for many developing countries like the Philippines.

Policy reform played a critical role in opening the market to competition, lowering cost, and introducing new technologies. The impact of policy and regulation can be seen in improved access and affordability of services, and profitability of the industry. Based on the Philippine experience, reform happened through policy actions influenced not only by the demands of the market but the intervention of political actors as well. The introduction of various pro-consumer business models, especially in the mobile sector, that responds to the economic constraints of consumer proves to be crucial to increasing access.

This paper presents the Philippine telecommunications sector as a case study to show how policy and regulatory reforms can dramatically improve access. It looks at how reforms first brought about market efficiency—by introducing competition, deregulating, and re-regulating, when necessary—then analyze policy instruments and interventions directed at achieving universal access vis-à-vis the government’s capacity, resources and track record to enforce them. Finally, the paper discusses the remaining policy and regulatory issues that need to be addressed in order to move towards universal access and fully reap the benefits of a dynamic telecommunications and ICT sector.

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## Introduction

In today's fast-paced and rapidly changing world, access to quality information is considered a critical component for economic development and poverty reduction. Information and communication technologies (ICTs)—such as fixed lines, mobile phones, and the Internet—serve as tools to access relevant information and communication services that are difficult, if not impossible with other human resources and infrastructure. ICTs can help provide crucial knowledge inputs to enable productive activities in rural and poor households, make markets more accessible, increase the reach and efficiency of the delivery of social services, and give people a chance to influence policy and decision-making (Navas-Sabater, Dymond & Juntunen, 2002). It has become more relevant in everyday living that even the United Nations Millennium Development Goals (2007) consider making available the benefits of new technologies, especially ICTs as a target under Goal 8: develop a global partnership for development (UN, 2007, p. 32).

ICT is now widely recognized as a valuable economic resource. The World Telecommunications Development Reports point out correlation between access to telecommunications—the foundation of ICTs—economic wealth and social development (International Telecommunication Union [ITU], 2002) and the clear impact that ICT has on economic growth (ITU, 2006). For developing countries, ICT can help facilitate socio-economic development (Madon, 2000). The Grameen Village Phone of Bangladesh (Cohen, 2001) or the e-Seva project in India (Prashanth, cited in Harindranath and Sein, 2007) are some of the most celebrated examples of projects that provide ICT access to unserved communities as a way to reduce poverty and improve governance.

Given its benefits, the international community has embraced the “*universal, ubiquitous, equitable and affordable*” access to ICTs as a global mission (WSIS [World Summit on the Information Society], 2004; ADB [Asian Development Bank], 2003; ITU/UNCTAD [United Nations Conference on Trade and Development], 2007). As early as 1997, the United Nations General Assembly declared access to communication as a basic human right. This was supported later on by the Okinawa Charter on the Global Information Society (2000) and the World Summit on the Information Society (2003). But despite this global recognition, universal access remains a huge challenge for developing countries, especially in rural areas.

The concept of universal access has evolved through the years. In 1984, the Maitland Commission defined universal access in terms of the time it gets for a user to reach a telephone such as “one phone within 1 or 2 hours of walking distance” (Msimang, 2003). Improved infrastructure, advanced technologies and varying levels of development have made its definition more ambiguous. Developed countries target *universal service* goals of making telecommunications services available *within households*. Developing countries, on the other hand, aim to provide access on a shared basis (Intelecon, 2004) or to a point near every resident, up to a certain standard (ITU, 2003). Both concepts embody the same general goals—affordability, availability and accessibility of ICT services—and now includes Internet access (Xavier, 2005; ITU 2003).

Relative poverty and isolation may affect a country's efforts to achieve universal access (Dymond, 2002). People in poor, remote areas lack access to telecommunications and ICT infrastructure, thereby creating a *digital divide*. In most low-income developing countries, for example, only one person in 50 is online and access is concentrated in cities and urban areas (Rao 2003). Rural areas often suffer neglect with or without liberalized markets, because they are perceived as carrying both higher risk and lower returns to investors. They are naturally the last to be served, unless some form of intervention is applied (Navas-Sabater, Dymond & Juntunen, 2002). In Asia, where 75% of the population lives in rural areas, the disparity is extremely glaring. On one hand, there are countries like South Korea and Singapore that lead in broadband connectivity; on the other, there are countries that have less than 10% Internet penetration.

The digital divide in a fully privatized telecommunications sector is a function of market failure and the presence of policy and regulatory barriers for the development of the telecommunications and ICT sector. Policy and regulatory reforms—that can create a stable macroeconomic environment, competition in the telecommunications sector, and a suitable regulatory environment can improve a country's access to ICT (Proenza 2001). The presence of a credible and effective regulatory environment is essential in shaping the development of a country's ICT infrastructure (Salazar, 2007). A regulatory environment with clear and transparent rules, standards, and actions can help minimize regulatory risk, and thus, spur further investments in the development of ICT infrastructure (Melody, 2003). Studies also show that improving regulatory performance can result in improved sector performance (Berg, 1999) and that telecommunications policy and regulatory reforms, in particular, are associated in developing countries with higher investment and faster productivity growth in the sector (Fink, Mattoo and Rathindran, 2003; Wallsten, 2002; and Gutierrez, 2003, cited in Stern & Cubbin, 2005). Regulators and policymakers, therefore, play a critical role in achieving universal access.

The World Trade Organization (WTO) Reference Paper (1998) allows “each country to define the kind of universal service obligation it wishes to maintain.” Within this framework, regulators have played the traditional role of: (1) defining universal access; (2) determining affordability; (3) implementing and financing universal service/access goals; (4) verifying universal service obligation cost; (4) reviewing progress; and (5) ensuring community participation in determining targets (ITU, 2003). Developed countries have achieved significant progress in all tasks. Developed countries like the United States used subsidies to provide services to their low-income population, which pegged long distance tariffs above costs. When competition and technological progress reduced costs, a number of developed countries started abandoning cross subsidies for “universal service funds.” This allowed for more transparency in subsidy allocation, less distortion in markets, and clear identification of beneficiaries (Haro 2004). Developing countries, on the other hand, are struggling to achieve their universal access goals. Although access to ICT has significantly increased in developing over the past 25 years (World Bank, 2006), more progress can be achieved with a regulatory and policy environment that is pro-competition, levels the playing field, and allows for innovative services and pricing schemes.

Using this premise, this paper will examine the telecommunications policy and regulatory reforms that have contributed to achieving universal access in the Philippines, the context in which they took place, the remaining barriers, and recommendations on how to address them.

### **Achieving Universal Access through Policy and Regulatory Reforms: A Case Study of the Philippine Experience**

In order to determine the appropriate policy and regulation to be used in achieving universal access goals, there is a need to identify the kind of “access gap” to be addressed. The **two “access” gap** conceptual framework (Navas-Sabater, Dymond & Juntunen, 2002; Lallana and Soriano, 2007; Xavier, 2005) points to the different dimensions of the *market efficiency gap* and the true *access gap*. The market efficiency gap indicates the difference between what markets are actually achieving under current conditions and what they could achieve if regulatory barriers were removed and regulations were used to provide incentives. This can be addressed by increasing private sector participation in providing services, facilitated by effective competition, and by market-oriented policies and regulations that create a level playing field for new entrants. On the other hand, *access gap, per se*, recognizes that the market has limitations and that there are areas and population groups that are unable to afford market prices even under efficient, optimal and liberalized market conditions, and not in the foreseeable future.

Many countries have made progress in addressing the market efficiency gap, through privatization, market liberalization, and fair regulation (Navas-Sabater, Dymond & Juntunen, 2002). A comparative study of Asian telecommunications policy reforms (Cabanda, 2002), for example, concludes that privatization and competition policies combined (neither one alone) can improve efficiency, meet consumers' demands for better services, and make technological

advances possible. On the other hand, addressing the true access gap remains a struggle for many developing and low-income countries. A number of studies point to the critical importance of liberalization and competition policies in achieving universal access. Xavier (2006), for example, asserts that policy measures such as market liberalization, supported by effective pro-competitive regulation and declining technology costs, can help achieve universal access goals.

The Philippines offers an interesting case study of how policy and regulatory reforms addressed the market access gap and achieved initial success in bridging the real access gap.

Despite a poverty incidence of 34% and infrastructure investment accounting for only 4.45% of its gross domestic product (GDP) (NEDA [National Economic and Development Authority], 2006), the Philippines has achieved significant progress in telecommunications and ICT. The telecommunications structure is composed of 73 local exchange carriers (LECs), 11 international gateway facilities (IGFs), seven (7) cellular mobile telephone service (CMTS) carriers, 14 inter-carriers, and 388 value-added service (VAS) providers. This indicates **competition in various segments of the telecommunication and ICT sector**. There is **increased access to ICT**. From a **fixed line** teledensity of less than 1 per 100 persons in 1990 and a single dominant operator that took years to install a line, teledensity climbed to 7.8 in 2005, new players entered the market, and the waiting time to apply for phone service is measured in days. The **mobile sector** experienced exponential growth and overtook fixed lines as early as 2000. From 500,000 in 1995, mobile subscription grew to 40 million in 2006. **Internet** access in urban areas increased from 2 million in 2000 to 7 million in 2006. ICT services are **more affordable**. The cost of telecommunications services has gone down over the past decade. Monthly fixed line subscription is available at less than \$10, with new offerings at \$27 for a fixed line and broadband connection. International direct dial (IDD) rates decreased by 75% in 2005, with budget calls to select destinations for as low as \$0.10 per minute. Private carriers continue to earn **higher profit**. In 2005, telecommunications accounted for almost 5% of total Gross Domestic Product (GDP). The market grew 6% year-on-year reaching almost \$3 billion in annual revenues. Corporate profits have also increased exponentially. In 2006 alone, the dominant carrier earned a net income of US\$780 million.

How did telecommunications become one of the most dynamic sectors in the Philippines? What policy and regulatory reforms took place and how did they contribute to universal access?

### **Philippine Policy and Regulatory Institutions**

The Philippines was one of the first to establish an independent regulator. However, a closer look at the government bodies overseeing and regulating the ICT sector shows the president's direct influence on ICT development in the country. The president—through an executive order (EO)—created the main agencies and commissions concerned with ICT. As such, the president also has the power to reorganize the offices and create new functions, as necessary. This system is prone to abuse and arbitrary decision-making subject to political whims.

In 1979, the Ministry of Transportation and Communications (MOTC)—the primary policy and implementing arm concerned with transportation and communication systems—was created through EO 546. When Pres. Aquino assumed office in 1987, she overhauled the bureaucracy and reorganized the ministries. She transformed MOTC into the Department of Transportation and Communication (DOTC) led by a cabinet secretary and undersecretaries all appointed by the president. The National Telecommunications Commission (NTC)—the regulatory arm that serves as a quasi-judicial body—was originally under DOTC. However, when Pres. Estrada created the Information Technology and Communication Council (ITECC) in 2000, NTC was placed under the council. When Pres. Arroyo took over in 2001, she placed the chairmanship of ITECC under her office. The council was soon transformed into a Commission on ICT (CICT), composed of the National Computer Center (NCC), Telecommunications Office (TELOF), and all DOTC offices directly supporting communications. NCC coordinates all-e-government initiatives and the

implementation of government IT plans while TELOF provides communication facilities and services nationwide and maintains its own backbone.

The legislative branch plays an equally influential role. Unlike in many countries, Philippine public telecommunication entities (PTEs) require a franchise through a bill that has to be passed by Congress before it can acquire a Provisional Authority from the NTC. The NTC must issue a Certificate of Public Convenience and Necessity (CPCN) before a carrier can begin operations. Ownership of a telecommunications entity, like other public utilities, is restricted to 40 percent foreign ownership.

### **Pre-liberalization: Single Dominant Player**

The private sector was a key player in telecommunications development in the Philippines. The initial phase, however, was led by a single dominant carrier that enjoyed its monopoly with continuous support from the government whose leaders either had vested economic interests or familial links with the company. This type of “booty capitalism” wherein the patrimonial state maintains strong relations with a predatory oligarch for mutual gains is found in many industries like in banking, as discussed by Hutchcroft (1998). As a result, direct executive control of the policy and regulatory agencies results in “regulatory capture,” whereby the regulator or operators lost (or never had) the independence to make professional decisions on their merits because of undue influence either from politicians or the regulated monopolies (Melody, 1997).

The Philippine Long Distance Telephone Company (PLDT)—the nation’s largest and oldest private telephone operator—dominated the **pre-liberalization** era. Incorporated in 1928 following the merger of four telephone companies under common United States ownership, PLDT was granted sole franchise by the Philippines legislature to establish and operate telephone services nationwide. In 1968, a group of Filipino businessmen led by the pro-Marcos Cojuangco family formally assumed management of PLDT when it acquired the block of shares owned by an American corporation (PLDT, 2005). Although there were about 60 provincial telephone companies, a government telephone system, and two international submarine cable companies before liberalization, PLDT owned and controlled the infrastructure through which all calls passed (Salazar, 2007). Pilipino Telephone Corporation (Piltel), an emerging competitor at the time, was ordered to stop rolling out additional lines, in effect awarding PLDT virtual monopoly. Using AT&T’s arguments for “natural monopoly,” it was contended that PLDT would assume a universal service obligation through cross-subsidies primarily from its international revenues. But as time passed, it was clear that PLDT fared poorly in meeting its commitments (Zita, 2006).

Being the incumbent fixed line operator, PLDT has the leverage of building and owning a nationwide backbone that will guarantee its dominant position in the market up to the present day.

The 1987 Philippine Constitution provides for the regulation or prohibition of monopolies (Section 19, Article XII). The initial result was the introduction of competition in the mobile sector. In 1988, a mobile license was granted to Express Telecommunication (Extelcom) and Piltel. PLDT, through its mobile service subsidiary *Smart Communication*, eventually bought Piltel. Back then, mobile phones used analog technology that cost \$1,500 per unit, making it an expensive communications device. In 1989, two (2) licenses were awarded for international gateway facilities (IGFs). However, due to high retail cost, having multiple mobile service providers did not benefit the common Filipino. Instead, the mobile phones catered mostly to corporate clients and government officials (personal communication with N. Virata, August 28, 2007).

### **Liberalization: Opening Up the Fixed Line Market**

The liberalization period began in 1993 under the administration of President Fidel Ramos. During a visit to Manila in November 1992, Singaporean Prime Minister Lee Kuan Yew said that, “98% of Filipinos are waiting for a phone line, and the other two percent are waiting for a dial

tone” (Cabanda, 2002). Responding to the embarrassing comment, President Ramos issued two Executive Orders to mandate interconnection and expand service through competition. **EO 59** mandated interconnection among local telecommunication firms and lower telephone subscription rates for consumers. **EO 109** mandated the improvement of LEC service. It established the Service Area Scheme (SAS), which divided the country into 11 geographical service zones. Built on "cross-subsidies," the SAS required IGF operators and CMTS providers to install a minimum of 300,000 and 400,000 local telephone lines, respectively, within a five-year period (later reduced to three years). With priority to be given to underserved and unserved municipalities, the private operators were mandated to roll out lines based on a 10:1 urban-rural ratio. In March 1995, a new law **Republic Act (R.A.) 7925** codified liberalization and competition, and gave regulatory authority for the National Telecommunications Commission (NTC) to establish tariffs for telecommunication services.

The two executive orders introduced new entrants and began the initial wave of investments in telecommunications infrastructure. In 1996, a Hong Kong-based consultant aptly described the situation of the country's telecommunications sector by saying that "the Philippines has more operators and potential operators than most countries in Southeast Asia put together" (Paras, 1996). During this period, Digitel and Bayan Telecommunications (BayanTel) were the leading competition to PLDT. It was BayanTel that elicited enthusiasm in the fixed line sector because of the speed of its installation and introduction of the caller identification I.D., a feature that allows the unit owner to see the caller's number. By 1999, BayanTel was already opening its provincial operations (Oliva, 1999). As a result, fixed line teledensity increased, from a mere 784,000 in 1993 to 6.6 million in 1998 when the SAS ended.

Although competition helped expand the telecommunications infrastructure, a study released by the NTC revealed that only 78.7% of the fixed lines committed under EO 109 were installed by 1998. More than half of the public telecommunication entities (PTEs) failed to comply reportedly because of the peace and order situation in a number of rural areas (especially in Mindanao, southern region of the country) and financial problems brought about by the Asian crisis (NTC, 2003). Subscription fixed line teledensity was also slow to pick up, from 1.65 per 100 persons in 1995 to 3.87 in 1999 and continued to decrease thereafter. With a huge rural poor population (80% of total poor population), the urban-rural subscription imbalance became more glaring. In the National Capital Region, subscribed lines were at 1.6 million for a population of 11.2 million whereas in Region 4 subscription is a measly 581,450 for a population of 12.8 million. As of 2005, only half of the installed fixed lines were subscribed.

### **Deregulation Paves the Way for the Mobile Era**

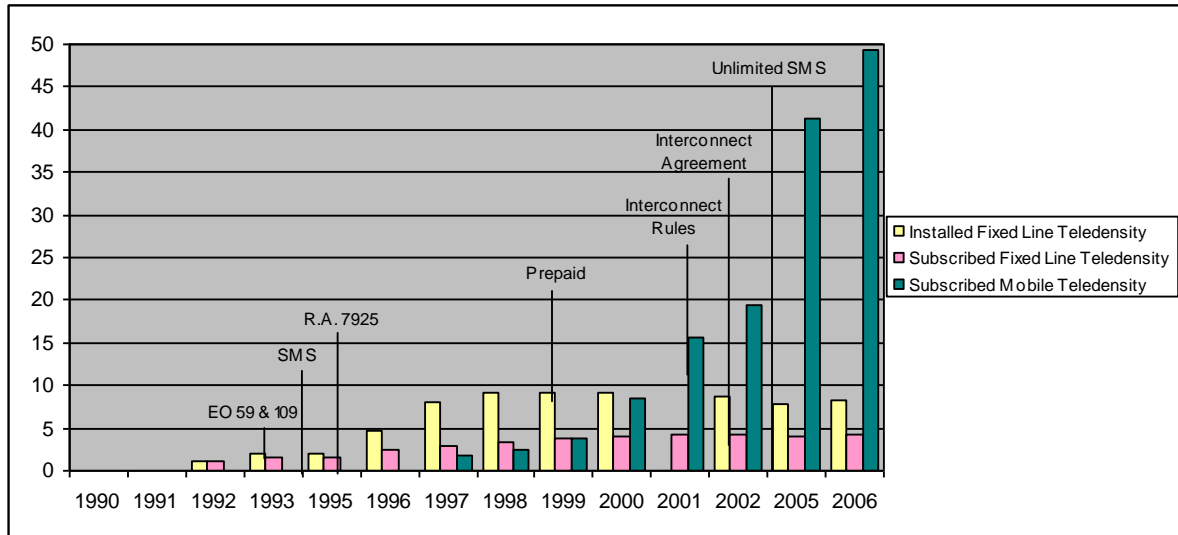
***Deregulation was critical to jumpstarting the exponential growth of the mobile sector in the Philippines.*** It was when the government allowed the market to develop its own business models and adopt innovative pricing schemes when the mobile sector witnessed an exponential growth, with subscription jumping more than 100% between 1999 and 2000. Due to affordability and convenience, mobile technology is now providing a substitute to traditional basic fixed services and extending access to formerly unserved population such as the urban poor and rural users, making it a significant tool to achieving universal access for many developing countries (Intelecon, 2003). Due its popularity in the Philippines, mobile carriers quickly gained market power. As a result, regulators faced a unique challenge in addressing interconnection problems of dominant, private mobile carriers. Prior to this, no other market in the world (developed or developing) had drafted and enforced rules on private mobile carriers. All previous experience involved a dominant fixed line carrier. After deregulation, re-regulation through interconnection rules became an imperative to create "real competition" in the now strong mobile sector.

### **Re-regulation: Taming the Dominant Players of Fixed Line and Mobile**

Regulation through interconnection rules gave new players the chance to compete and focus on lower prices, improving service and introducing new services. Once interconnection began, the

regulator stepped back and let the mobile market work. Mobile subscription began to overtake fixed lines in 2000 (Estavillo, 2003) (See Figure 1). However, like fixed line, the regulator had to re-regulate the mobile market to ensure that the dominant players do not stifle competition.

**Figure 1. Fixed line and Mobile Teledensity 1992-2006 (per 100 persons) and major policy and regulatory reforms**



Source: NTC (2006); World Bank (2006), Salazar (2007).

While liberalization brought significant investment and benefits, the growth of the telecommunications sector was severely hampered by anti-competitive practices and the Asian financial crisis. **At the core of the anti-competitive practices was the use of interconnection to hinder competition.** Using its market power, the dominant carrier stifled competition by either not physically interconnecting, disallowing calls to terminate in its network or discriminatory pricing to non-affiliated carriers. With limited access to the network of the dominant carrier, the smaller telecommunications companies experienced difficulty getting and retaining subscribers. As a result, costs of providing service were high while the quality of service remained low. In some cases, the interconnection problem weighed down on the rollout of the smaller carriers as subscribers chose the dominant carrier due to the inability to reach the majority of Filipinos on other telephone networks.

From the onset of liberalization in 1993, the regulator had been unable to “discipline” the dominant carrier. For fixed line, customers of BayanTel were complaining that they could not connect to PLDT subscribers.

In the mobile sector, the situation was nearing a crisis by 2000. The interconnection agreements with the dominant carrier were ineffective. As a result, consumers such as families, corporations and other groups selected the same phone service network to avoid the problem of being unable to connect when calling other networks.

Due to significant public pressure, the NTC began embarking on a multi-step process to resolve interconnection and related pricing issues. In July 2000, it issued **Memorandum Circular (MC) No. 14-7-2000** or the "Rules for Interconnection of Public Telecommunications Entities," which established the framework and rules governing interconnection negotiations. In July 2002, NTC issued **MC No. 09-07-2002** or the "Specific Guidelines for Interconnection," which provided the framework for cost-based interconnection pricing and a uniform access charge formula among all interconnecting entities.

The regulator played a crucial role in issuing interconnection rules to ensure competition among the different mobile operators. But since the regulator did not have the teeth to enforce the policy, interconnection negotiations did not bear fruit as the dominant carrier refused to connect the other players. It was presidential intervention that served as the tipping point that finally led to the signing of the interconnection agreement between the two dominant cellular mobile telephone service (CMTS) providers (personal communication, NTC consultant, 2007). Although there were no proceedings or account of the events that led to the signing of the interconnection agreement, this author was given privileged information by a technical consultant who was privy to the closed-door meeting of the president with representatives of mobile operators. Therefore, despite not having any written document to support the story, and understandably so, this author believes that it is important to mention this occurrence here—probably for the first time—for the purpose of understanding the key role of the executive in steering the reform process in the Philippines. While anecdotal evidence is not considered as scientific proof, there is value in appreciating their significance.

During this period (2000-2002), major interconnection disputes were resolved and calls between the two major networks became possible. As a result, carriers correctly focused their attention on service and prices instead of blocking calls and unending negotiations for interconnection. Once consumers were empowered to choose which service provider to subscribe to, mobile phone penetration grew almost 80% from 1998 to 2002 (See Figure 1). As of 2003, there were three (3) major CMTS providers—*Smart Communication (PLDT)*, *Globe Telecom*, and *Sun Cellular (Digitel)*. Other brands such as *Talk 'N Text* and *Touch Mobile (TM)* are subsidiaries of Smart (through Piltel) and Globe, respectively.

### **Mobile Sector: Using a Pro-Consumer Business Approach**

The mobile market dramatically changed in 1994 with Globe's initial offering of short messaging service (SMS), commonly known as "texting." However, it was when pre-paid mobile services were introduced in 1999, combined with interconnection, that mobile phone sales began to skyrocket (See Figure 1). As of 2006, there were 40 million mobile subscribers, 98% of which are prepaid (PLDT, 2006; Globe, 2006). Pre-paid service and SMS have significantly changed the Filipino's personal consumption expenditure that in 2003, transportation and communication expenditure grew more (11.7%) compared to food expenditure (4.2%) (National Statistical Coordination Board [NSCB], 2003).

Despite having low monthly average revenue per subscriber (ARPU) at US\$ 5.5 (Pre-paid monthly ARPU averages US\$ 13 for Malaysia and US\$ 8.50 for Thailand), Philippine mobile operators have managed to thrive and be profitable

The mobile sector has achieved network coverage of over 99% of the population and an estimated 67% household penetration (GSM Association, 2006). In 2006, mobile services continued to dominate the telecommunications market, with 68 percent revenue market share (Lectura, 2007).

***Apart from competition and de-regulation, mobile operators have developed a business model that combines innovative products and pricing schemes appropriate to the environment and subscriber base.*** They offer pre-paid top-up service and e-banking geared toward the needs of low-income and rural users, and internal cost-saving measures that include the popular electronic load or "e-Load." Reload options are made easier with load sharing via SMS. More importantly, prices of SIM cards (lowest at US\$1.30) and the minimum credit load (lowest at US\$0.33 per day) have significantly decreased. Globe's "mass market brand" TM, for example, was the major driver for its growing subscriber base for 2006 (Globe, 2006). These innovations have driven retail trade penetration up to the "sari-sari" (convenience) store and small entrepreneur level. The popularity of SMS has made the Philippines the "texting capital" of the world with an average of 250 million SMS sent daily. SMS use grew even bigger beginning 2003 with the entry of the Gokongwei family-owned *Sun Cellular*, who introduced the flat rate unlimited

“24/7” SMS. Gokongwei also owns Cebu Pacific, the airline that broke the monopoly of Philippine Airlines. As a result of its aggressive products and services, Sun Cellular’s subscribers grew to an impressive 1 million within just several months. Soon after, the dominant operators started offering similar budget packages, which has expanded to voice services.

With the pervasiveness of mobile phones, it is envisioned as a tool for universal access. A study by LIRNEasia (2007) on teleuse reveals that in five developing countries, including the Philippines, accessibility is “extremely high” with more than 90 percent of respondents having used a phone at least once during the preceding three months (de Silva and Zainudeen, 2007). This shows that everyone can have access without necessarily having “ownership,” making the shared use reseller model an important innovation in providing access in low-income countries like the Philippines.

### **Access Gap in Fixed Lines and the Internet Remains**

The government’s policy and regulatory framework for achieving universal access are based on two flawed assumptions: (1) that the government can effectively manage a universal access fund and/or maintain and operate universal access programs, and (2) that the private sector can be mandated to comply with universal access obligations in order to expand the reach of its services using its own income.

In 1989, the government, through Republic Act No. 6849 or the “**Municipal Telephone Act**”, mandated interconnection for the first time. According to the law, the state was to “interconnect all municipalities in the country through a nationwide network of public calling offices (PCOs).” In response, DOTC established a Municipal Telephone Projects Office (MTPO), which secured financing for the establishment of 2,879 “*Telepono sa Barangay*” TSB (telephone in the village). The project was a US\$177-million loan from the Export Development Corporation (EDC) of Canada and the Credit de France/Standard Chartered Bank (CICT, 2007). Ironically, the PCOs lacked funding for maintenance. As a result, what started out as 700 PCOs in 1998 diminished to 150 operational PCOs as of May 2005 (Mirandilla & Umali, 2006).

By 2000, it was apparent that a number of operators have failed to comply with their SAS obligations. Six operators (Digitel, Globe, Bayantel, PLDT, Smart and Piltel) were able to rollout the required number of local lines, and rural deployment but were deficient in covering the required areas. Three (3) operators (Islacom, Capwire, Philcom) were deficient in rolling-out the required number of lines and areas to be covered but were able to meet rural development. ETPI was unable to continue its rollout plan. Extelcom and BellTel did not start with their rollout program at all. The SAS was abandoned in 2002 (NTC, 2003).

Between 2001 and 2004, the government focused on a wide range of pro-consumer policies geared toward providing services in the rural areas. Realizing that the high cost of services was keeping households from subscribing to fixed lines, the NTC issued policies that mandated the introduction of affordable retail schemes. In September 2001, NTC issued **MC No. 6-9-2001**, which required carriers to provide consumers a menu of payment schemes. This resulted in innovative subscription plans such as PLDT’s “*Teletipid*” and “*Telesulit*,” pre-paid landline services offered in various budget packages. The budget scheme, however, appealed more to the urban poor who can easily opt for installation of lines.

To make services more affordable for rural areas, NTC issued **MC No. 08-07-02** in July 2002 to authorize any entity to install and operate public calling offices (PCOs) and telecenters—shared access points that allow a community to aggregate costs and demand—in the countryside. The ICT Roadmap (2003) and the Medium-Term Philippine Development Plan (2004-2010) recommend the establishment of community telecenters called “Community e-Centers (CeCs),” which will convert PCOs into telecenters by supplying them with computers and Internet access. The CeC program targeted to establish 110 centers by 2005. The government, civil society groups and donor agencies have funded the deployment of telecenters throughout the country.

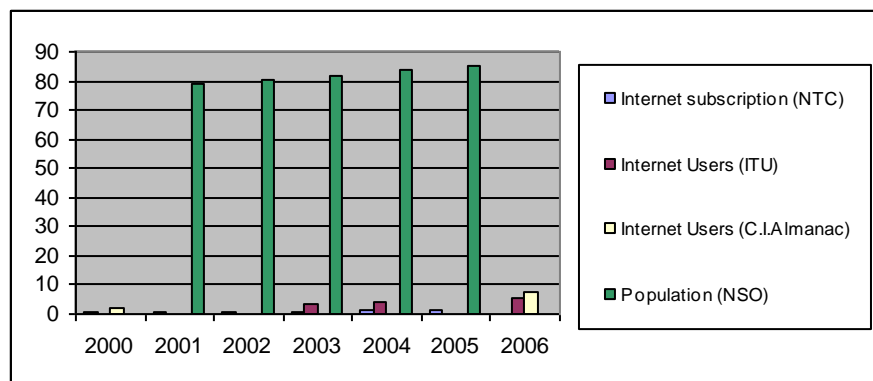
Their maintenance and operating cost, however, are a huge problem as funding remains focused on the technology (Mirandilla & Umali, 2006).

In 2003, NTC replaced the SAS with a new scheme that provided an incentive for carriers—the granting of permanent Certificate of Public Convenience and Necessity or CPCNs—in exchange for establishing telecenters in areas where installation of local exchange lines was still pending. Although major carriers are already providing technological support to public access points such as telecenters and schools, establishment of telecenters are still mostly government and donor-funded.

**Low access to fixed lines—the foundation of ICT infrastructure in the Philippines—result in low Internet access.** In 2002, for example, almost half of the cities and municipalities nationwide were still without fixed line connections. The National Capital Region (NCR) made up almost 26% of installed fixed lines and 15% of actual subscribed lines out of 16 regions. By 2005, 35,000 barangay (village level) out of the estimated 42,000 remain unserved (Zita, 2005). This explains low Internet access and usage in the provinces. Being the dominant fixed line service provider, PLDT has the widest network backbone. The National Digital Transmission Network (NDTN), jointly owned by six other PTEs, is the country’s only major alternative telecommunications backbone. Digitel, on the other hand, had bought a ready-made rural telephone network in Luzon from TELOF in the 1990s.

**Aside from low subscription to fixed lines, low household ownership of personal computers in the country also contributes to low internet penetration** (Salazar, 2006). In 2004, PC penetration was estimated at 4.5 per 100 persons. The NSCB shows that the Philippines ranked fairly in various ICT indices such as in e-Readiness—which assesses the countries ability to promote and support digital business and ICT services—where the Philippines ranked number 51 out of 65 countries. This poor performance can be attributed to low connectivity (broadband and wireless internet connection) and low PC penetration (U.S. Commerical Service, 2007).

**Figure 2. Population and Internet Usage (in millions)**



Source: NTC, ITU, NSO, Computer Industry Almanac

Surprisingly, **the Philippines ranked the second fastest-growing market for broadband worldwide in 2006** in a study by United Kingdom-based research and consultancy firm Ovum (Casiraya, 2007; Cusi, 2007). From 2005 to 2006, total broadband in the Philippines grew at 157 per cent, with 127,942 subscribers in 2005 and 329,216 as of end-2006. Based on the report, the number of broadband users in the Philippines is expected to grow from some 3 million to less than 10 million in 2011. Infrastructure competition, relative pricing and regulatory involvement are the drivers to broadband growth. However, deployment is still at an early stage and there is slow uptake due to the high cost of broadband service relative to average monthly disposable incomes of subscribers. The lowest monthly fee for broadband in the Philippines (\$17.28) is comparable

to OECD countries like Finland, Ireland and Italy with some of the highest entry level monthly fee from among 10 countries.

According to Ovum, the regulator has to be “more involved to lower wholesale price,” which refers to the cost of leased line imposed by public telecommunications carriers on internet service providers. Using India as a benchmark, the monthly international private leased circuit price for 2Mbps of the Philippines to Singapore is at \$4,400 while India is only at \$2,620. For monthly domestic leased line for 2km at 2Mbps, the Philippines (\$32.7) is again more expensive than India (\$21.23) (Goswami, 2007).

Low Internet penetration is compounded by the lack of reliable data on Internet access in the country (See Figure 2). The NTC’s figures show that in 2005, there were 1.44 million subscribers of registered Internet service providers (ISPs). However, the ITU already reported an estimated 4.4 million Internet users or 5.32 users per 100 persons in 2004. The Computer Industry Almanac (C.I.A.) estimates Internet penetration rate at 9.3%, translating to 7.8 million Internet users in 2006. Meanwhile, Yahoo! estimated that there were 14 million Filipino Internet users in 2006 or (16% of the population) and predicts a total of over 22 million in 2008 (Casiraya, 2007).

To address the Internet access problem, measurable targets must be defined and analyzed. Access to dependable data, therefore, is the first step. It was only in November 2006 that the Inter-Agency Committee on ICT Statistics was formed to provide policy assistance and guidance for the value estimation of e-Commerce, ICT satellite accounts and ICT statistics (NSCB, 2006). Similar to the mobile sector’s approach, ultimately the key is to find the appropriate business model that will suit the economic constraints of consumers.

### **Results of Policy and Regulatory Reforms**

A number of key lessons can be drawn from the policy and regulatory reforms that took place in the Philippines since liberalization. One is that ***policy and regulatory reforms can dramatically alter the development of a sector and a country, in general.*** Having the legal and policy framework for changing the market structure can lead to irreversible progress such as the introduction of competition. A second and equally important lesson is the impact of re-regulation. Development practitioners and policymakers often point to the importance of “liberalization and de-regulation.” The Philippine case highlights that ***deregulation in a market that lacks sufficient competition generates less positive impact on the economy and hampers full competition.*** As seen in the cases of fixed line and mobile, anti-competitive practices can exist in a deregulated market if the dominant player remains unchecked. Instead, a period of “re-regulation” is necessary to usher in more robust competition. Interconnection, for example, has greatly improved telephone access despite the marginal increase in fixed line subscription. The competition that ensued after interconnection—and a changing market structure—allowed significant growth in the mobile sector, which grew nearly seven-fold (716%) between 1998 and 2002.

***Access dramatically increased due to lower prices.*** Opening the fixed line market introduced new investors and reinvigorated the incumbent PLDT, which still held more than half of local line subscribers as of end 2000. It paved the way for other players to provide access in areas that the dominant players put in the sideline. The result was a huge jump in installed teledensity and a wide range of subscription options.

Increased competition between landline providers resulted in lower prices for voice calls. PLDT, in its 2002 annual report, said that it lowered its IDD charges from US\$0.69 per minute for peak hours to a flat rate of US\$0.40 per because of “increased competition from alternative means of long distance communications, including international text messaging, and because of more inbound calls terminating directly to cellular subscribers.” In addition, it introduced a pre-paid

budget card offering a reduced rate of US\$0.24 per minute for calls to the United States, Canada and Hawaii (PLDT, 2002).

The mobile sector led the growth of ICT in the country. Mobile penetration grew exponentially, reaching approximately 48% of the population in 2006 or nearly 13 times the country's fixed line penetration. Subscribers owning multiple SIMs, however, have likely exaggerated this figure to a certain extent (PLDT, 2006). Affordable SMS and prepaid packages continue to provide pro-consumer service innovation that appeal to the needs of low-income areas.

A case study of select telecenters (Mirandilla & Umali, 2006) shows how a number of rural communities gain access to the Internet due to lower cost. The Sogod information center in Cebu province, for example, shifted to DSL from dial-up internet due to an "upgrade" promotion by the private operator, *Globelines*. A school computer lab-cum-community telecenter in Bontoc, on the other hand, shifted to Wi-fi access from *Smart Communication* that is cheaper than the satellite connection it previously used. Consequently, internet cafes began sprouting in the area.

***Liberalization did not cripple the dominant player.*** On the contrary, PLDT's business became stronger through the years. As of end-2006, PLDT remains the leading fixed line provider with approximately 63% of the total number of subscribers nationwide as of end-2006. Smart Communications, its wholly owned subsidiary, is leading in cellular service with approximately 41% of the total number of subscribers. Piltel, Smart's 92.1%-owned subsidiary, accounts for 17% of total subscribers with its *Talk 'N Text* brand (PLDT, 2006). In the first quarter of 2007, its market value reached P500 billion, making it the largest Philippine company in terms of market capitalization. PLDT's net income in 2006 was P35.1 billion, earning mostly from data service. Smart subscription has reached over 27 million as of June 2007 while combined broadband base (PLDT MyDSL and Smart Bro) has climbed to 422,000 (PLDT Press Release, 7 August 2007). Business seems to be getting better that its top management recently announced plans to bid for the operation of the county's power transmission facilities (Philippine Star, 13 June 2007), which the government is privatizing in line with the Electric Power Industry Reform Act (EPIRA) of 2001.

***Telecommunications is reducing transactions cost.*** Mobile phones are offering a wide variety of services such as sending of remittance at lower cost to consumers. Based on an average remittance of \$300 from the United States, Japan, Malaysia, Singapore and Hong Kong, for example, remittance charge through mobile phone services (*Smart Padala* and *Globe G-Cash*) only costs 1% of the average remittance value compared to banks that charge up to six times more (USAID, 2004). This is especially helpful to the families of overseas Filipino workers (OFWs). In 2006, OFWs remitted an estimated US\$12.8 billion; the figure grows around 18% year-on-year. Specifically, remittance channels have improved the platform for remittances through adoption of advanced systems and new technologies (such as internet/on-line banking, phone banking and through short messaging) (PIA, 2007).

Mobile phone technology is also utilized for microfinance. Driven by falling costs of mobile phones (including airtime) and competition, electronic banking offers a wide range of enhanced services to rural areas at very low cost (Cracknell, cited in Owens and Herrera, 2007). In 2000, mobile commerce—the buying and selling of goods and services using electronic currency through wireless handheld services—was launched in the Philippines. Current m-commerce services include *Text-A-Payment* of Globe and *Smart Money* of Smart. In 1998, USAID began funding the pilot use of G-Cash for rural banking (Owens and Herrera, 2007).

Another innovation, Voice over Internet Protocol, significantly reduces voice call costs as it uses the Internet instead of the traditional public switched telephone network (PSTN). There was a long standing debate on whether VoIP was a voice service, which according to the lawm only franchised public telecommunications entities could offer. But due to significant public pressure, the NTC made a landmark decision in May 2005 by ruling that the use of VoIP is an "enhanced" service that can be offered by both PTEs and VAS providers (NTC, 2005). Anticipating the decision, PLDT introduced budget cards as early as June 2004 that offered IDD

calls for US\$0.18 per minute down from US\$0.40. By September 2005, PTEs had already lowered their IDD rates further to US\$ 0.05-0.10 per minute. The same happened in mobile where IDD calls made on the same network went down to US\$0.18 per minute. Investments in businesses process outsourcing have grown partly due to this development. VoIP is also gaining popularity among households due to its valuable service to connect people with family members and loved ones working or living abroad. A local government-operated telecenter in Barangay Basak-Pardo in Cebu, for example, offers VoIP calls for families of Filipino migrant workers within its community. A telecenter in another barangay in Cebu has also begun offering VoIP after it acquired broadband Internet access.

***Telecommunications has made a huge impact on creating jobs and supporting emerging industries.*** According to ADB's 2007 Asian Development Outlook, "transport and communications, finance, and private services, including business process outsourcing and other information technology-enabled services, led growth in the Philippine services sector, which grew by 6.3% and accounted for 3 percentage points of total GDP growth (ADB, 2007). There are more than 20,000 people employed directly in the telecommunications industry (PLDT, 2006b). More significant is the estimated 250,000 jobs as of end-2006 found in supporting industries such as business process outsourcing (BPO), mostly from medical transcription and call centers. The value of BPO has reached US\$3.4 billion in end-2006 and grows at an annual rate of 43 percent (BPAP, 2007). The Department of Trade and Industry registered a 665% growth between 2001 and 2004 (CICT, 2006). In the call center business, the Philippines has the fourth largest industry, only next to Australia, India and China (PIDS [Philippine Institute for Development Studies], 2006). The BPO sector is now expanding to outlying provinces, allowing job seekers from rural areas to stay close to their hometowns. Some of the provinces that are emerging as provincial hubs for BPOs include Cebu, Davao and Pampanga (neoIT, 2005). The government is pushing for six more provinces to be considered.

***An innovative pricing scheme, not technology per se, is key to universal access.*** Affordability is a primary consideration of poor consumers for using ICT. The case of the Philippine mobile sector shows how the introduction of affordable retail schemes such as the pre-paid top-up and SMS allow the poor and otherwise isolated consumers to use ICT that suits their financial capability. As a result, many services such as microfinance, banking and e-government now use mobile technology as the medium. LIRNEasia's teleuse at the bottom of the pyramid study (2006) also provides further support to the assertion that mobile phones serve as a universal access tool. Shared access to fixed lines and mobile also proves helpful to consumers especially in the low-income bracket.

### **Remaining Barriers to Achieving Universal Access**

***The reforms achieved in bridging the market efficiency gap and some aspects of the true access gap are hard to reverse.*** There is competition in the market, prices are lower, and new technology and innovation are allowed to flourish. However, a number of challenges remain in terms of expanding access, especially to rural areas.

***Lack of innovative universal access schemes.*** Uptake of installed fixed lines is slow in rural areas due to relatively high cost of subscription and voice calls compared to their income (80% of poor population lives in rural areas). The SAS obligations of private carriers were deemed unattainable given conditions such as the Asian Financial Crisis and low demand. When the SAS lapsed and call rates eventually went down, both the regulator and carriers claim that the source of the cross-subsidy had also disappeared. This claim, however, is not supported by hard evidence. The disparity of telephone and Internet rates between business and residential rates, and in IDD and NDD calls rates, suggests that cross-subsidies still exist. Neither the international nor domestic termination rates are "cost-based." Efforts by the NTC a few years ago to introduce

more cost-oriented pricing met stiff resistance from the dominant carriers (personal communication, former NTC consultant, January 2006).

There are other verifiable bases for this assumption. First, decreasing rates can be attributed to more efficient technologies and to competition. Second, the industry is not using a uniform chart or scheme of accounts, which makes it difficult for the regulator to verify the financial reports and data coming from private carriers. Third, there is still no approved cost-based methodology that enables the unbundling of charges. Finally, there is no real accounting work showing that the cross-subsidies have been taken out of the operator's pricing scheme. No policy has also been issued to categorically indicate the dissolution of the cross-subsidies. The government can consider capturing the cross-subsidies to invest in unprofitable rural areas instead of using government resources or applying for loans.

In 2005, the government announced its plans to spend over US\$130 million for digital infrastructure to push for the rollout of and pay for debts accumulated by the creation of the "Telepono sa Barangay" (Bautista, 2005). In early 2007, a reported "executive agreement" was signed between the Philippine government and China's ZTE Corporation for a US\$329 million loan to fund a National Broadband Network project, which aims to build a backbone for exclusive government use. The project created a lot of controversy and resulted in a Senate inquiry due to bribery and corruption allegations that involved top-ranking Filipino officials. It was unclear whether the project will allow G2C transactions to enable citizens to access broadband services, especially for far-flung rural areas. There is also debate over whether to establish a universal access fund. However, lessons from past experience indicate that financing universal access could only result to failure and huge debts due to weak institutional capacity and a highly politicized policy and regulatory environment. If government is to make any investment in support of universal access, it should focus on providing political and administrative support, and developing relevant content to projects such as telecenters.. The government need not invest in infrastructure and services that the private sector can provide efficiently.

**Lack of regulatory independence.** The law severely limits the ability of regulators to conduct the difficult task of disciplining dominant players who stifle further competition. Regulators are political appointees of the President and have no security of tenure, making them vulnerable to political influence. For example, after just six months during the Estrada administration, the three NTC Commissioners were replaced. A highly politicized regulatory environment is an unstable one. A World Bank 2004 report points out that because of routine political interference in the Philippines, "the sector is essentially hostage to political expediency." There is no security of tenure that protects the regulator from political dismissal, and the commissioners are constantly subjected to pressure from political officials (World Bank, cited in Ure, 2003 & Zita, 2005). The random hiring and firing of regulators, for example, is common fare in the Philippines with every change of leadership or due to political issues.

The awarding of 3G frequencies in December 2005, for example, was contended as a biased process. Both the winners and losers of securing a license have filed complaints and questioned the results of the NTC's decision. The draft guideline on the awarding of 3G licenses states that applicants should submit a five-year roll-out plan to cover 80% of the provincial capital towns/cities and 80% of the chartered cities.

Since the regulator also does not have an autonomous funding base, its capacity to purchase equipment, train staff, and improve its system is also limited. The budget appropriations that NTC receives from the general appropriations approved by Congress (US\$3.5 million in 2005) is not proportional to the income it remits to the nation's coffer (US\$50.4 million in 2005) (NTC, 2005). As a result, the NTC struggles to perform its tasks such as keeping industry players in check or enforcing penalties and sanctions. This set-up also opens the system to regulatory capture. To avoid this, it is important for the regulator to have independent funding either through a share from its spectrum fees or penalties imposed on misbehaving operators.

**Some anti-competitive practices prevail.** Since 2000, the NTC has stopped setting prices on mobile. However, the duopoly is bent on securing their position in the market. Giant mobile operators Smart and Globe, for example, filed a petition with the NTC seeking a "cease-and-desist" order against Sun Cellular for its "24/7 unlimited calls and text" promo. When the NTC ruled in favor of Sun, soon after Smart and Globe offered a similar service. By 2006, these firms were already providing SMS service for as low US\$0.007 per text to any network. Previously, access charges across networks were pegged at an average of 65 to 70 centavos for every text message sent.

The outbound international market was a dominant source of cross-subsidies. The voice call rates for the two dominant mobile carriers remained at US\$0.40 a minute until 2005. This only changed recently when the NTC issued a policy on VoIP that allowed PTEs and VAS providers alike to offer the service. A second, related market is the inbound international termination market. With their huge subscriber base and, therefore, dominant market power (most calls will end on their handset), the dominant carriers can determine termination rates for incoming international calls. In fact, this was the subject of a U.S. Department of Justice and Federal Communications Commission action in 2003 (Federal Communications Commission [FCC], 2003). The final market deals with national long distance termination charges. The dominant cellular companies can set their rate to terminate a call on their networks. This is especially true today when calls are terminated more and more through mobile phones.

**Need for a Relevant Competition Policy Framework.** To address prevailing anti-competitive practices, the NTC issued a document on the development of a Competition Policy Framework for the ICT sector in December 2005. The framework aims to correct the flaws in the regulatory environment that restrain competition and prevent the efficient functioning of the market to provide universal access. The document poses questions to various stakeholders on their assessment of the market and how the regulator can ensure that there is sufficient competition to discipline the behavior of the incumbent.

For the competition policy framework to be relevant and effective, it is imperative for the *NTC to strengthen its institutional capacity to be able to exercise independence*. As discussed earlier, the first step to building its capacity is to have a stable and reliable source of funding to improve its technological capabilities and human resources. This fund can be derived from spectrum fees, for example, which can be collected and managed directly by the NTC without having to be remitted to the national government. Fees from sanctions and penalties should also go directly to the regulator's funds. To have independence, *regulators also need to have long-term contracts* so they can focus on relevant issues instead of constantly worry about political pressure. It is also crucial for the *NTC to have access to accurate and timely information from industry players*. The sporadic submission of annual reports and non-compliance to reporting standards and requirements limit the NTC's ability to make sound decisions that are based on solid facts. To address this, a uniform chart of accounts is imperative.

**Need for more timely response to new technology.** In order to be relevant, policy and regulation should be able to respond to issues and rapid technological innovations in a timely manner. As seen in the case of VoIP, technology-specific rules can hamper the development of the telecommunications industry and innovation that can provide more convenient and affordable services. When VoIP was introduced, the public telecommunication entities argued that the technology, based on RA 7925, was a traditional voice service. This meant that smaller players with no franchise are not allowed to provide the service. But due to significant public pressure, the NTC ruled that the use of VoIP is an "enhanced" service that can be offered by both PTEs and VAS providers (NTC, 2005). Immediately, the market responded and national and international call rates were lowered. This shows that creating a policy and regulatory environment that encourages the flourishing of new technology opens the market to greater investments and spurs economic activities.

**Poor frequency management system.** Taking advantage of technological advancements greatly depends on the allocation of frequencies. However, this finite and valuable resource is underutilized, undervalued and ineffectively managed in the Philippines. Information about spectrum allocations is disorganized and available through personal request. This results in low financial returns for the regulator from a valuable yet underutilized resource. Frequency management within the NTC is uncoordinated. There are different offices handling it and various databases used—paper, MS Excel and MS Access (personal communication, former NTC consultant, 2006). Thus, current allocation and assignment of frequency is unreliable and the government is unable to respond aptly to demands. Since it is difficult to determine who owns what, the system is prone to squatting and violations. This negatively affects investment, planning for the future of telecommunications and ICT development, and the efficient deployment of services throughout the country. The awarding of 3G licenses, for example, was envisioned for providing Internet access through mobile phones, which is more ubiquitous than fixed lines. There is a need to develop and implement market-oriented strategies for clearing encumbered spectrum. It must give disincentives to squatting and incentives for use. In order to continuously monitor and control the existing spectrum allocations, the NTC must invest in spectrum engineering and planning to determine which can be reallocated for higher-valued new uses. It is good to note that the regulator has begun efforts to clean up its record and make its frequency allocation table available to the public through its website.

**Unreliable and scattered ICT indicators.** Information regarding ICT use and demand is crucial to effective policymaking, planning and implementation. Systematic monitoring and evaluation based on up-to-date data, as well as regular “audits” of the economy, efficiency, and effectiveness of the administration of a universal service program are all critical to ensure that universal service targets are being achieved according to schedule (Xavier, 2006). It is interesting to cite the results of a survey measuring ICT published by the UN ICT Task Force, which indicate that demand for indicators is high in the Asia Pacific. Oddly, respondents from the Philippines said that there was “no demand” for ICT business indicators. The Philippines also stood out for having a decentralized ICT statistical system where, aside from the national statistical office, several line agencies collect ICT indicators. The NSCB, which serves as the coordinator of data collection, has been clamoring for the adoption of statistical standards. The lack of a clear-cut data collection system and institutional framework for ICT statistics suggests that the Philippines has yet to see the value of ICT indicators for use in planning, policymaking and governance.

## **Conclusion**

**Policy and regulatory reforms have enabled the Philippines to bridge the market efficiency gap and achieve initial success in addressing the true access gap.** The sector thrives in competition, price of telecommunications and ICT services has significantly decreased since liberalization, and the market is flourishing through innovative products and pro-consumer business models. As a result, access to fixed lines has increased, the mobile sector experienced phenomenal growth, transaction costs have decreased, and new investment and job opportunities have been created.

**The mobile sector is a key success story of policy reform in the country.** Apart from introducing new players and mandating interconnection, the policy environment allowed for an innovative, pro-consumer retail-pricing scheme, therefore addressing the true access gap. With the introduction of pre-paid top-ups and SMS, mobile subscription has grown to over 40 million, reaching areas that remain unserved by fixed line up to now. Mobile phones, through 3G technology, are also bringing internet access to more and more areas throughout the country. Due to its pervasiveness, many mobile services such as m-banking and m-government are gaining popularity and usage.

Addressing the true access gap in fixed lines and the Internet, however, remains a huge challenge. To succeed, the government must build on its past successes in reform.

***Before introducing a new public service obligation scheme, the regulator should first focus on building its institutional capacity and asserting its independence, starting with securing its own funding base and improving its technological and human resource.*** In this way, it is better able to discipline the market players and ensure their compliance with policy and regulation.

Failed investments in the past should emphasize the need for government to veer away from financing universal access programs that involve building infrastructure and offering services that the market is able to effectively provide. New private investment to expand telecommunications infrastructure is a clear indication that the private sector is providing the necessary capital to expand access in the coming years, at no cost to government.

The regulator should, however, be steadfast in putting a check on anti-competitive business practices and monitoring the industry's performance in terms of providing access in the rural areas. Based on initial successes, the government must allow the market to devise an innovative, pro-consumer business approach to expand the reach of the Internet, and possibly fixed lines, in low-income rural areas. The simple and obvious solution to this is lower retail cost, which can be achieved when wholesale prices are made more affordable.

The use of public access points may offer an initial solution to addressing the true access gap. Instead of investing on redundant infrastructure, the government should instead provide support in developing relevant content and applications for shared/public access points. These public access points like telecenters can be a means to determine the demand and viability of business in a particular area. Once demand is defined, private carriers can then decide shift to commercial operation.

By ensuring effective competition, embracing innovation and allowing pro-consumer business models, the government can effectively balance the interests of the public sector, the market and consumers—the main beneficiaries of policy and regulation.

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