

**TOWARDS
UNIVERSAL INTERNET ACCESS
IN THE PHILIPPINES**

ideacorp
and
Intel Technology Philippines, Inc.

TOWARDS UNIVERSAL INTERNET ACCESS IN THE PHILIPPINES

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Preface

*The production of this paper was triggered by a series of informal discussions between **ideacorp** and Intel Technology Philippines, Inc. on the need for a Universal Internet Access policy and strategy in the country. The impetus for these discussions include the vast opportunities the Internet brings to improve the way we do things and improve our lives; the rapid technological developments that allow the provision of Internet access to remote areas at lower costs; and the positive lessons that continue to be learned about how community Internet access centers have been enhancing the lives of rural communities globally.*

The Philippine government has recognized the importance of providing universal Internet access and, through various international instruments and national policy documents, has committed to provide community-based Internet access by 2010. In our ICT Roadmap, we target to provide broadband connectivity to all key cities, municipalities, and urbanized barangays and to 55% of all rural barangays by the same year. However, we do not have a written comprehensive policy and strategy to achieve our targets.

Much has been written and said about the issue and on what needs to be done. But we need to pull these ideas together, organize the issues, and find ways to strategically address them. Simply put, while we know our destination, we seem to have been side-tracked and appear to have lost a clear sense of direction.

*This paper is an attempt to put us back on track. In the course of doing research, we benefited from a review of existing policies and strategies, as well as good global practice on universal access. To ensure this paper responds truly to the needs of the country, **ideacorp** and Intel organized a multi-stakeholder Study Group to review and comment on it. The members of the Study Group came from government, the academe, civil society, the private sector including former government officials who participated in these meetings in their personal capacity. The two Study Group meetings helped the authors to understand fully past strategies, and provided insight on what could be done to enhance existing policies.*

The authors thank the Study Group members for their time and ideas. It should be emphasized that while this paper benefited greatly from their comments and suggestions, ideas expressed in this paper are not necessarily endorsed by them or by the institutions/organizations they represent.

The authors also thank Intel Technology Philippines, Inc. for helping formulate a Universal Internet Access Policy and Strategy for the Philippines, specifically, Yvonne Garcia Flores for her tireless efforts to promote this project. Like the Study Group, Intel does not necessarily endorse the ideas expressed in this paper.

*Research for this project was done mainly by Dr. Emmanuel C. Lallana and Ms. Cheryll Ruth Soriano of **ideacorp**. As this paper's authors, they take full responsibility for its contents, including ideas, errors, and omissions.*

Executive Summary

In recognition of the Internet as a tool for national development, the Philippine government made a commitment to provide, by 2010, universal access to the Internet through public access points. But, there are serious concerns regarding its ability to meet this obligation. The assumptions and practices that had dominated policy deliberations and reforms in the past are now outdated in the face of dramatic technological and market changes. Further, there is no strategic plan to implement the (de facto) universal access strategy, and there is a lack of clear institutional mechanisms for orchestrating coherent and effective activities.

Although technological developments rendered some of the country's policies and strategies obsolete, they however opened up opportunities for increasing popular access to ICT. For example, Convergence created new and lower cost possibilities for marginalized communities to access the Internet. Attention on the involvement of local governments and communities in the development of rural information infrastructure also increased.

Having analyzed these gaps and opportunities, the authors of this paper endorse a set of recommendations for universal Internet access in the country. These are:

- Maintaining the ***pro-competitive, market-friendly policy environment*** for ICT development. This should include technology-neutral laws, policies and other issuances, competition-policy law or framework for the information economy, open access to networks policy, a "Broadband Bill of Rights", and spectrum management policy review;
- Redirecting national government efforts ***away from funding CeC deployment to funding the development of relevant online content and the provision of e-Government services to citizens;***
- ***Involving local government units in the provision of community internet access centers and eGovernment services;***
- Reviewing Universal Access Fund and Mandatory Obligation for telcos. This paper ***questions the creation of a Universal Access Fund and endorses a "Revised Mandatory Service Obligation"*** that takes advantage of the resources and expertise of the private sector in putting up and managing CeCs.
- Incorporating ***public-private partnerships*** in the national effort to push government's universal access programs;

- Piloting **Local Open Access Networks** similar to those now being implemented in various developing countries including Africa and Latin America. This special type of access initiative characterized by a 'localized broadband' presents an alternative to the usual top-down information infrastructure deployment approach and commits to build on the value of local capacities;
- **Enhancing our capacity-building and training programs**, noting that computer literacy and awareness are imperative before key services can be delivered successfully online;
- Supporting the **creation of a Department of Information and Communication Technology** to direct all ICT efforts of the government and to oversee our universal internet access strategy;
- Ensuring that the universal internet access policy and strategy **be in consonance with over-all national development plans**.
- **Improving on our indicators and statistics on universal service and universal access in the Philippines** which will serve as important bases for policy-formulation and programming of government ICT projects.

In 2000, during the Brunei Summit, APEC leaders “*commit(ed) to develop and implement a policy framework which will enable the people of urban, provincial and rural communities in every economy to have individual or community-based access to information and services offered via the Internet by 2010.*” In 2003, through the World Summit on the Information Society (WSIS) Phase 1, world leaders declared that “*universal, ubiquitous, equitable and affordable access to ICT infrastructure and services, constitutes one of the challenges of the information society and should be an objective of all stakeholders involved in building it.*” In WSIS Phase 2, they called on “*those governments that have not yet done so to elaborate, as appropriate, comprehensive, forward-looking and sustainable national e-strategies, as an integral part of national development plans and poverty reduction strategies, as soon as possible and before 2010.*”

Rationale for Universal Internet Access

The increasing importance of Information and Communication Technology (ICT) in policy discussions is due in part to what it can bring to the developing world, and these are, more efficient governments, productive businesses, globally competitive knowledge workers, and empowered rural communities. In another, beyond these possibilities, there is also growing evidence that ICT, if used in the right way and for the right purposes, can have a dramatic impact on social and economic development goals as well as play a key role in broader national development strategies.¹ Reinforcing these hopes about ICTs is the observation that information is becoming a critical resource and basis for competition that leaves developing countries with no real choice but to invest in ICT in order to participate in the global economy and consequently avoid the tremendous costs of exclusion².

Over the past decades, ICT, particularly the Internet, has become an important tool for development. There are very good reasons for why developing countries should include widespread use of the Internet in their development goals. The Internet can help improve governance, can create more productive businesses, and can promote knowledge communities.

¹ See for instance, Digital Opportunity Task Force (2001). *Digital Opportunities for All, Meeting the Challenge*, available from www.dotforce.org/reports, United Nations Development Programme (2001). *Human Development Report: Making New Technologies Work for Human Development*. Oxford and New York: Oxford University Press for UNDP, United Nations - Economic and Social Commission for Asia and the Pacific (2003). *Report on the Expert Group Meeting on Government Policies and Strategies on Information and Communication Technology for Rural Poverty Reduction in Asia and the Pacific Region*. Bangkok, 27-28 November <http://www.unescap.org/rural/ictegm2003/report.pdf> (accessed June 2007).

² Arjun Bedi, 1999 cited in Torero, Maximo and Joachim van Braun, Eds (2006), p. 2. *Information and Communication Technologies for Development and Poverty Reduction. The Potential of Telecommunications*. Johns Hopkins University Press, Published for the International Food and Policy Research Institute.

The Internet can facilitate better governance by making government processes more efficient and transparent, and contribute to delivering useful government information and services quickly. By 2005, of the 191 UN Member States, 179 (or almost 94%) had some form of eGovernment initiative, up from 178 member states in 2004 and 143 member states in 2001.³ According to the UN eGovernment Report, "not only did more countries come online, they expanded and consolidated their e-services further."⁴ However, what could be the most significant contribution of Internet use in governance is enhancing citizen participation. Some have argued that the Internet has made direct democracy possible.⁵

From e-Government to e-Inclusion

The Socially Inclusive Governance for Information Society Framework is a 'vision' for restructured thinking about developing an inclusive information society based on the appreciation of the capabilities of each and every person; the dignity that economic and social choice brings; and the freedom to partake it all.

It is a call to developing countries for shedding the emphasis on connectivity and access and substituting it with a focus on inclusion for all groups in the population. It is a call to focus on programmes and policies aimed at the diversification of the ICT base, such that those with low income, women, disadvantaged groups and those living in rural areas are systematically included in the impending benefits from newer technologies. The Framework propounds the notion that to build an inclusive society, e-government should expand to e-inclusion.

*The cornerstone of the **Socially Inclusive Governance Framework** is a focus on the reduction in inequality of opportunity. As such, the imperative for progress towards a socially inclusive government is access-to-all. Participation is possible only if political, economic, technological and social barriers are removed and access to these opportunities is equitably distributed.*

*Information technologies facilitate the dissemination of information and the opportunity of feedback, as they promote access to government and are the perfect conduit for citizen-government partnership to promote public value, and therefore, inclusion. **Inclusion and participation through ICTs, or e-inclusion, then becomes the key tool at the disposal of a socially inclusive government.***

Source:

UN Global E-government Readiness Report 2005: From E-government to E-inclusion
<http://unpan1.un.org/intradoc/groups/public/documents/un/unpan021888.pdf>

³<http://www.unpan.org/egovernment5.asp>

⁴Ibid.

⁵See for instance, Dick Morris *Vote.com: How Big-Money Lobbyists and the Media are Losing Their Influence, and the Internet is Giving Power to the People.*

The Internet has also created a new way of doing business or eCommerce. According to a 2007 projection by the research firm IDC, "(d)espite continuing political and economic uncertainty, the Internet's extraordinary stability, resiliency, and ever-increasing utility will push the global market for ecommerce spending past \$10 trillion by 2010."⁶ The Internet is also transforming 'traditional' businesses, making them more productive and giving them a global presence. To date, even if only a few small and medium-sized businesses provide online transactions, they have begun posting their services and goods online, giving them market reach that would otherwise have been available only to big corporations.

Li & Fung: Old Firm, New Technology

During the course of its nearly 100-year history, Hong Kong-based Li & Fung Limited has grown from a simple exporter to an expert in "global supply chain management." The company coordinates product design, raw material and factory sourcing, production management, and quality assurance for clients that have included The Limited, The Gap, Coca-Cola, and Kohl's Corporation. Li & Fung deals primarily with garments but is increasing its focus on promotional items, toys, sporting goods, and housewares.

When one of its clients needs a product, Li & Fung does much more than just find the lowest-price source. The company breaks apart the manufacturing process to find the best supplier for each stage of production. For example, if a client orders a polo shirt, Li & Fung might buy American cotton, have it knitted and dyed in China, and send it to Bangladesh for sewing. The company's 65 sourcing offices in 38 countries give it the global connections it needs to pull off this "borderless" manufacturing process.

Founded in 1906 as an exporter in Guangzhou, China, Li & Fung has survived World War II, China's move to Communism, and eventual reopening of China for trade. More recently, the company has adapted to the transition from a manufacturing to a service-based economy in Hong Kong and the emergence of the Internet.

Source:

<http://www.answers.com/topic/li-fung-limited?cat=biz-fin>

Internet also plays an important role in developing communities by empowering infomediaries and eventually community members themselves. Internet access can help infomediaries, including teachers, agricultural extension workers, NGOs, cooperatives, community groups, and churches, to enhance their development roles. For instance, online training for agriculture extension workers will update them with the latest in agricultural technologies which they

⁶<http://www.idc.com/getdoc.jsp?containerId=206420>

can share with farmers. Cooperatives can get regular information on prices of commodities that they trade.

At the same time, bringing Internet centers to rural communities can help these communities directly. Access to information through the Internet can help rural families gain better livelihood opportunities, find new ways of learning for their children, and present new modes of communication with relatives and friends. ICT can also address problems of rural communities regarding access to information and knowledge critical to agriculture and other livelihood sources.⁷

The eChoupal

e-Choupal initiative (is) the single-largest information technology-based intervention by a corporate entity in rural India. Transforming the Indian farmer into a progressive knowledge-seeking netizen. Enriching the farmer with knowledge; elevating him to a new order of empowerment.

e-Choupal delivers real-time information and customised knowledge to improve the farmer's decision-making ability, thereby better aligning farm output to market demands; securing better quality, productivity and improved price discovery. The model helps aggregate demand in the nature of a virtual producers' co-operative, in the process facilitating access to higher quality farm inputs at lower costs for the farmer. The e-Choupal initiative also creates a direct marketing channel, eliminating wasteful intermediation and multiple handling, thus reducing transaction costs and making logistics efficient. The e-Choupal project is already benefiting over 3.5 million farmers. Over the next decade, the e-Choupal network will cover over 100,000 villages, representing 1/6th of rural India, and create more than 10 million e-farmers.

Source:

http://www.itcportal.com/ruraldevp_philosophy/echoupal.htm

Perhaps the most important reason why governments should pursue universal Internet access is that the Internet leads to innovation, and innovation is the source of economic growth.

The Internet is a unique technology in that it provides *universal access* to information and knowledge, affording the "*same powerful capabilities to everyone who has access to the network no matter where they are.*"⁸ This equality of access is a key reason why the Internet fosters innovation. Anyone

⁷Taken from the message of Yushio Utsumi, International Telecommunications Union (ITU) Secretary General during the World Summit for the Information Society, Geneva, 2003.

⁸ http://www.livinginternet.com/i/ip_access.htm

with a possible solution can simply connect to the Internet to see if the solution works or might be seen by others as useful. Lawrence Lessig believes that the 'end-to-end' design of the Internet (where the 'intelligence' is at the edge of the network) "renders the Internet an *innovation commons*, where innovators can develop and deploy new applications or content *without the permission of anyone else*" (emphasis in original).⁹ The Internet as an innovations common is even more apparent with Web 2.0.

"Weapons of Mass Collaboration"

Individuals now share knowledge, computing power, bandwidth, and other resources to create a wide array of free and open source goods and services that anyone can use or modify. What's more, people can contribute to the 'digital commons' at very little cost to themselves, which makes collective action much more attractive. Indeed, peer production is a very social activity. All one needs is a computer, a networked connection, and a bright spark of initiative and creativity to join in the economy.

....

These changes, among others, are ushering us toward a world where knowledge, power, and productive capability will be more dispersed than at any time in our history—a world where value creation will be fast, fluid, and persistently disruptive. A world where only the connected will survive. A power shift is underway, and a tough new business rule is emerging: Harness the new collaboration or perish. Those who fail to grasp this will find themselves even more isolated—cut off from the networks that are sharing, adapting, and updating knowledge to create value.

Source:

Don Tapscott and Anthony D. Williams *Wikinomics: How Mass Collaboration Changes Everything*. (Portfolio, 2006) p. 12

Universal Access and the Market

Traditionally, universal access is defined as "a situation where every person has a reasonable means of access to a publicly available telephone."¹⁰ Today more sophisticated technologies for broadcasting and transmitting information continue to be considered as part of universal access. It should be noted that universal access has evolved in meaning so that now it is understood as "a dynamic concept with a set of moving targets."¹¹

⁹ Lawrence Lessig. *The Future of Ideas*

¹⁰ Hank Intven and McCarthy Tetrault (2000). *Telecommunications Regulation Handbook- Module 6: Universal Service*. InfoDev. The World Bank.

¹¹ Heather F. Hudson "From missing links to digital divides: progress and change since the Maitland Report" Gerald Milward-Oliver (ed) *Maitland+20: Finding the Missing Link* (Wiltshire: Anima Center, 2005) p. 46

The current definition of universal access is based on three key characteristics: affordability, accessibility and quality of service.¹² Governments, however, have the choice to define and set indicators of access in consideration of these. Universal access definitions, indicators, and targets are normally identified in national development plans. Logic and practicability of universality definition are critical since indicators and targets hinge on these definitions.

Finally, universal access is discussed not only in terms of access to devices or services that provide the conduit for information. It is also discussed in terms of access to information or content itself, and usability. Bridges.org identifies "real access" criteria to analyze all issues surrounding ICT access and use.¹³ Real access criteria are:

- Physical access to technology
- Appropriateness of technology
- Affordability of technology and technology use
- Human capacity and training
- Locally relevant content, applications, and services
- Integration into daily routines
- Socio-cultural factors
- Trust in Technology
- Local economic environment
- Macro-economic environment
- Legal and regulatory framework
- Political will and public support

Two Gap Model

In 2000, APEC Leaders recognized that to gain Universal Internet Access "*will require a regime of outward-looking and market-oriented policies.*" As suggested by the Two Gap Model, however, universal access cannot be resolved through market mechanisms alone. Attaining universality also requires addressing the market efficiency gap and the true access gap. (Figure 1)

The *market efficiency gap* is "*the difference between what markets actually achieve under current conditions and what they could achieve.*"¹⁴ Since regulatory barriers contribute to the market efficiency gap, regulatory reform or new market-oriented regulatory policies can remove the market efficiency gap. These include effective competition, private sector provision of services, and

¹²ITU Constitution cited in Tim Kelly, PhD (1999). *Access Policies for Achieving Universal Service/Universal Access*, ITU, presented during the Workshop on settlement reform and the costing and pricing of telecom services, Laos, 16-18 November

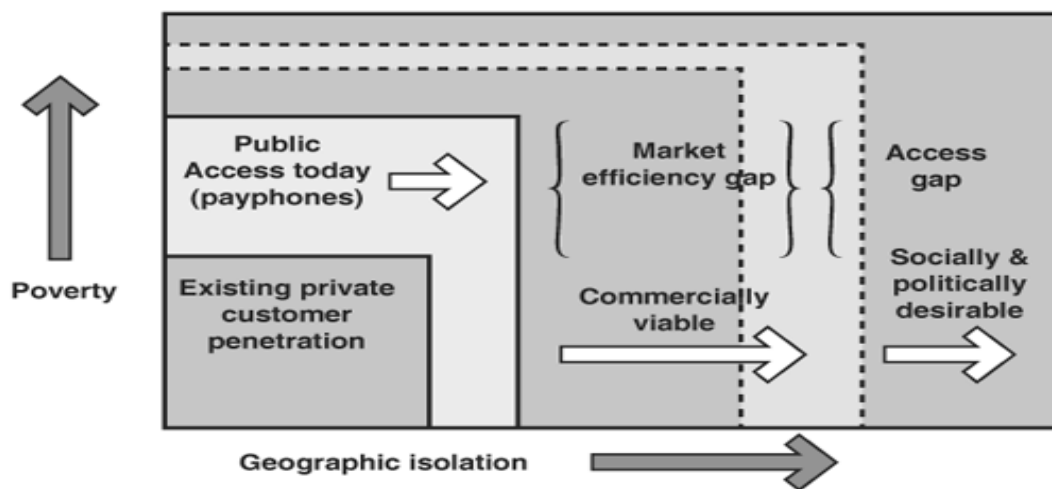
¹³ http://www.bridges.org/Real_Access

¹⁴ Uganda Communications Commission (2005) *Funding and Implementing Universal Access: Innovation and Experience from Uganda*. Chapter 1. Available from the IDRC website, http://www.idrc.ca/en/ev-88219-201-1DO_TOPIC.html

market oriented policies and regulations that create a level playing field, particularly for new entrants.¹⁵ Focusing on closing this gap would allow more marginalized communities, particularly in the urban poor areas, access to communication services.

The *true or real access gap* refers to people and places that remain out of market limits due to inadequate income levels or skewed income distribution. Even if markets were efficient, intervention still would be required to reach some areas and population groups. These areas and groups can not be served without additional investments in the form of subsidies or special incentives.

Figure 1: The two gap model



Source: Uganda Communications Commission (2005)¹⁶

Policies and strategies to address real access gap can take different forms, depending on several factors. Public investment may be necessary to close the access gap and make it possible for rural operators to become active in these areas. The population level at which universal access targets would be set must take per capita income and geography into account, as these determine the most compatible technology and costs. Further, the stage of existing telecommunications development, such as network reach, penetration and current liberalization status, must be considered before an appropriate policy can be defined.

Most access gap policies focus on the creation of a Universal Access Fund

¹⁵ Barbara Fillip and Dennis Foote (2007). *Making the Connection: Scaling Telecenters for Development*. Information Technology Applications Center, Academy for Education Development, p. 61.

¹⁶ The conceptual framework of the two gaps was first developed in the World Bank Discussion Paper 432 by Juan Navas-Sabater, Andrew Dymond, and Niina Juntunen (2002) entitled, "Telecommunications and Information Services for the Poor: Toward a Strategy for Universal Access". Available from <http://rru.worldbank.org/Documents/PapersLinks/1210.pdf>

(UAF) with a combination of: (a) a competitive bid between operators to distribute funds for targeted service provision projects, or (b) more competition for smaller, single-site investments such as telecenters, in which all applicants with acceptable business proposals can secure financial support. According to Fillip and Foote, social entrepreneurs may find a niche in less extreme cases of poverty or isolation, where they can reach out to populations that would not be serviced under a purely market-driven model.¹⁷

The Two Gap Model suggests that it is critical for government to develop policies to unencumber the market (to close the 'market efficiency gap'), as well as to institute creative policies to close the 'true access gap'. Since boundaries within these gaps are likely to change over time, solutions and policies should be adjustable to such changes.

Universal Access in the Philippines

Like many countries in the world, the Philippines is committed to universal access. It defines universal access as the "*availability in all urban and rural areas of a minimum set of telecommunications services, which are reliable and affordable, whereby:*

- *Availability (of telecommunications services) means the physical presence, within reasonable distance, of adequate telecommunications terminal equipment linked to a fully-interconnected network;*
- *Reliable means that the service meets the quality standards prescribed by the appropriate regulatory body, and;*
- *Affordable means that an increasing portion of the populace is able to bear the reasonable cost of the service, either through market forces or with government intervention"*¹⁸

This definition seems to have been intentionally left general to allow for targets to be adjusted depending on technological and national developments.

Based on nationally-set indicators, we can observe a widening set of access type and services over the years (Table 1, below). In the Philippines, universal access indicators evolved from public telephones in all barangays and telecenters in all municipalities (i.e., DOTC 'Telepono sa Barangay' and

¹⁷Ibid.

¹⁸DOTC (2001) cited in Claire Milne (2006). *Telecomms Demand. Measures for improving affordability in developing countries. A Toolkit for Action*. Department of Communications, London School of Economics.

Community-e Center Project, 2000) to broadband connectivity through public access points in all cities, municipalities and barangays.¹⁹ From a focus on community telephones, the Commission on Information and Communications Technology (CICT) broadened its target to include "access to online services... to all citizens,"²⁰ Specific indicators and targets to measure "quality of access" have also been identified.

The Philippines has also gone through a series of policy and legislative reforms over the years to spur telecommunications development and access to ICT.

Table 1

Target	NTDP (1990)	MTPDP (2001-2004)	Status
Teledensity (installed fixed lines)	3.8% by 1998 6.2% by 2004 10.0% by 2010	12.7% by 2004	9.1% in 1998 8.7% in 2002 7.8% in 2005
LEC service	50% of municipalities by 2000; 75% by 2004; 100% by 2010	80% of municipalities by 2004	52% as of 2001
PCO service/ Telecenters	PCOs in all municipalities by 2010 and 51% of barangays by 2010	Telecenters in all municipalities by 2004; public telephone service in all barangays	45% of municipalities have internet access points; 737 telecenters (as of Jan 2007) 96% of cities and municipalities have PCOs as of 2002
Cellular service	All cities and municipalities by 2010	100% of provincial capitals, cities and major highways	Network coverage of Smart and Globe now reach 99.9% and 96% of the population, respectively.
High-speed broadband service		In all cities by 2004	Est. no. of internet subscribers (1.4M), about 7.8M internet users. Data on high speed broadband deployment not available

Adopted from Alampay (2005)²¹ and updated from NTC (2007), Globe Telecom (2007), PLDT (2006), NCC-FOO (2007), Internet World Stats²²

¹⁹Commission on Information and Communications Technology (2006). "Empowering a Nation Through ICT" Philippine ICT Strategic Roadmap.

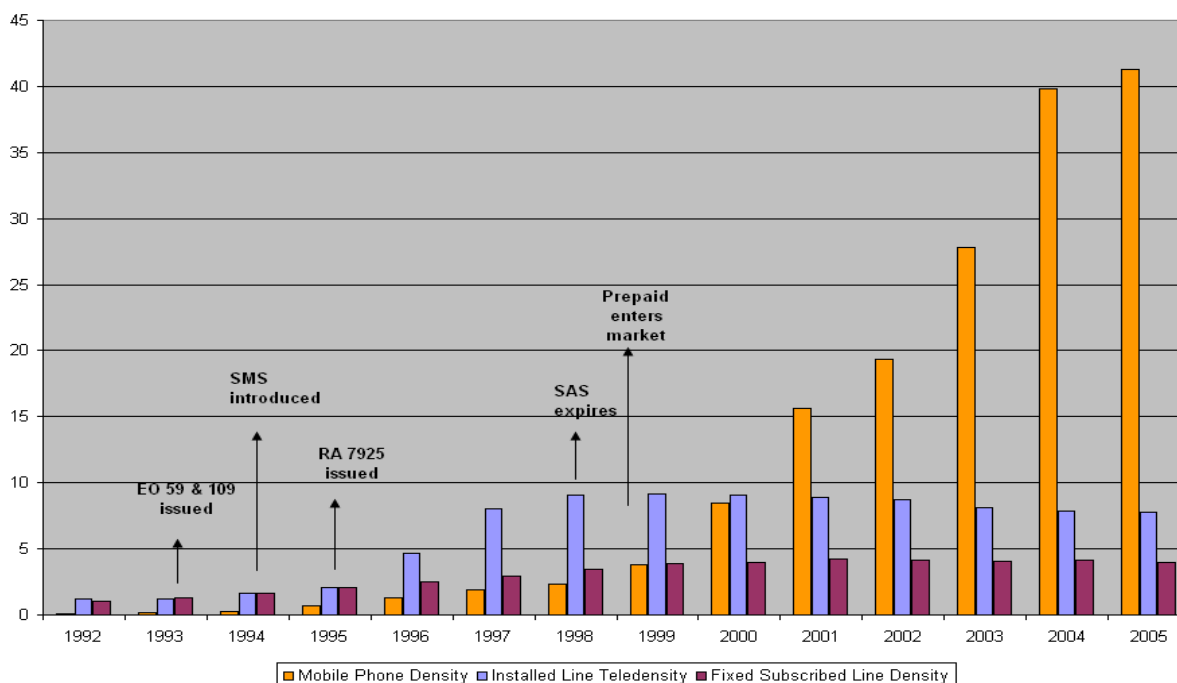
²⁰CICT (2006). "Empowering a Nation Through ICT", Philippine ICT Strategic Roadmap, Guiding Principles.

²¹Erwin Alampay (2005). *Rethinking Universal Access Using the Capability Approach: The Case of Access to ICTs in the Philippines*. PhD thesis submitted to the University of Manchester, Faculty of Humanities, p. 142. (copy sourced from author).

²²NTC (2007). *Internet Service 2005*. <http://www.ntc.gov.ph/consumer-frame.html> ; Globe Telecom, Inc (2007). *Globe Annual Report 2006*. Available from www.pse.org.ph/html/ListedCompanies/pdf/2007/GLO_17A_Dec2006.pdf ; PLDT (2006). *PLDT Annual Report and Financial Review 2005*. <http://www.pldt.com.ph/ir/ar.asp> ; National Computer Center –

Since the passing of Republic Act (RA) No. 7925 (s. 1995), the major telecommunications law, more than a decade ago, there has been a notable increase in access to ICT and ICT services. Progress in installed line teledensity has been evident in its increase from 2.01 in 1995 (since the passing of the law) to 9.12 in 1999, while in mobile network coverage, 99% of the total population was reached (Figure 2, below). The Philippines has the most number of SMS messages sent in the world, and this number has increased exponentially with an increase in the number of its subscribers. At the same time, Internet subscribers more than doubled in number compared to 3 years ago²³. We also can boast of more than 700 operating telecenters and information kiosks to service outlying provinces and municipalities, and this apart from a good number of cybercafes that have been set up and were made possible by lower investment costs for Internet businesses over the last 5 years. The Philippines has joined the ICT revolution, so that indeed these figures are encouraging.

Figure 2



Source: Data from the National Telecommunications Commission, International Telecommunications Union (various years); Adopted and revised from Alampay, Mendes, Soriano & Soriano (forthcoming)²⁴

Field Operations Office (2007). *Estimated Number of Telecenters in the Philippines as of Jan 31, 2007 and Internet Access in Philippine Municipalities*.

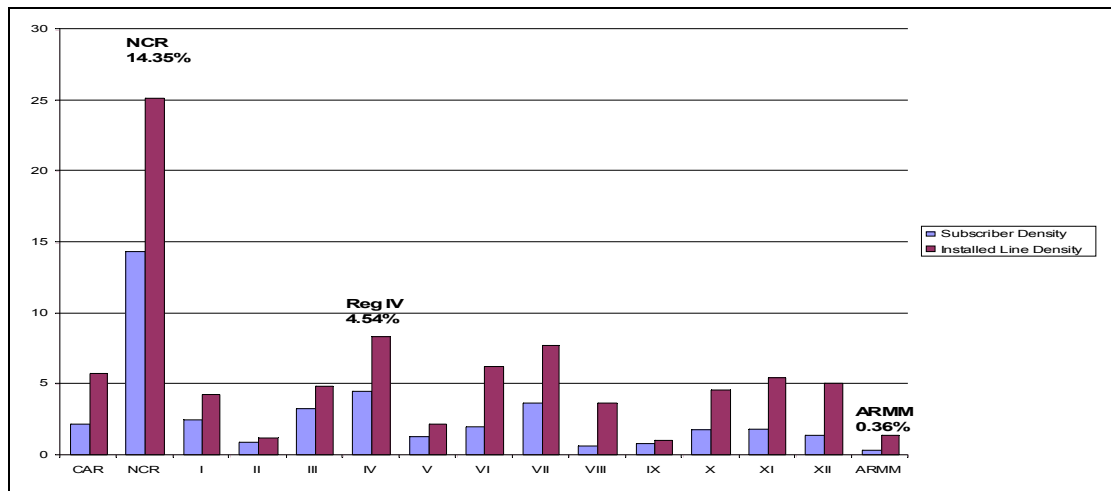
²³Nielsen Media Research Group (2007) – *The Online Filipino: Philippine Internet Landscape*. Presented during the National E Commerce Congress, Dusit, March.

²⁴E. Alampay, S. Mendez, E. Soriano & C. Soriano (forthcoming). *The innovative use of mobile applications in the Philippines – lessons for Africa*.

In midst of this optimism, however, there is evidence that past policies have resulted in massive underutilized infrastructure and in a concentration of access to communication services in urban and relatively higher income areas. Despite the huge number of lines (at 6,538,387) that have been installed, only half (or 3,367,252 lines) are currently subscribed. Also, telephone subscription is still highly concentrated in more urban and high-income areas, with the National Capital Region making up for more than 40% of total telephone subscriptions. (Figure 3, below)

The liberalization of the telecommunications market in the mid 1990s and the imposition of a Service Area Scheme (SAS) have been the determining factors in the current telecoms deployment in the Philippines. It is generally understood that increase in the country's teledensity was the result of putting an end to private monopoly in telecommunications and in opening the market to competition. Although this policy was designed to mitigate the inequity of a market approach to telecoms development, it also led to an inefficient deployment of capital and underutilized facilities.

Figure 3



Source: Data from NTC (2007)²⁵.

Executive Order (EO) 109 (s. 1993) and its IRR mandated that international gateway operators and cellular mobile telephone providers install, operate and maintain at least 300,000 and 400,000 local exchange lines, in unserved and

²⁵ National Telecommunications Commission (2007). *Number of Telecommunication Subscriber per Region 2005*, Available from <http://www.ntc.gov.ph/consumer-frame.html> (Accessed June 2007).

underserved areas, respectively, within a five-year period. (This was reduced to 3 years by virtue of RA 7925.) To implement the service obligation, the National Telecommunications Commission (NTC) adopted the SAS. In 1995, when RA 7925 was enacted, EO109 and its IRR were adopted. This required SAS participants to give priority to unserved and underserved municipalities and to roll out one landline in a rural area for every ten lines rolled out in urban areas. The viability of segmenting the market and imposing service obligations on carriers under SAS was premised on the feasibility of using domestic and international toll revenues, which were deemed profitable, to subsidize fixed line services. And, indeed, in 1996, SAS was viable at the start of the local exchange rollout when the accounting rate was as high as \$1.20 per minute²⁶.

In 1996, the United States Federal Communications Commission (USFCC) issued rules that would reduce accounting rates.²⁷ This reduction in settlement rate resulted in a decrease in revenue from international traffic for telcos and consequently affected their ability to subsidize the operation of local exchange lines. In addition, the introduction of VoIP and the classification of VoIP as VAS resulted in more entities entering into the international voice service, thus further reducing the revenues of telcos from international telephone services²⁸. Given these developments, the source for the cross-subsidy for local exchange carriers in unserved and under-served areas was lost and the SAS was imperiled.

Today, the challenge for the Philippines is to define a universal access policy that could solve the present inequities while at the same time be consistent with a market-led approach to ICT development as initiated in the mid-1990s.

Challenges and Opportunities

In the Philippines, an important first step in defining universal Internet access policy and strategy is to understand the present environment.

1. Challenges.

- **Laws and Policies.** There is a need to update our laws rendered

²⁶ National Telecommunications Commission, *Consultative Document on the Development of a Competition Policy Framework for the Information and Communications Technology Sector*, 2005. Available from www.ntc.gov.ph

²⁷ For traffic between Philippines and USA, the accounting rate was reduced from more than USD1.20 per minute to USD0.38 per minute by 1 January 2001. Settlement rate is 50% of the accounting rate. The share of the Philippine carriers was reduced from more than USD 0.50 per minute to USD 0.19 per minute. Before the reduction in settlement rates, the revenues from international telephone services comprise 70% of the total revenues of the telcos. Today, the revenues from international telephone services account for only 30% of the total revenues of the telcos. Consultation with Engr. Edgardo Cabarios, Head Common Carriers Division, NTC, July 2007

²⁸ Information in this section is validated with NTC Engr. Edgardo Cabarios.

obsolete by new technologies and convergence. For example, RA 7925 required telecommunication companies to provide landline services to underserved areas. Insisting on this today would serve no useful purpose beyond complying with the law, would be wasteful and would place an unnecessary burden on telcos. The mobile phone and other wireless solutions, in comparison to landline phones, are easier and cheaper to deploy and can provide more services.

There is also no formal document that defines comprehensively the country's universal access strategy. The Philippine ICT Roadmap (2006-2010) declares that *at the heart of the government's efforts to bridge the digital divide is the Community e-Center Program.*" While this document identifies projects and targets to achieve universal access, it does not include a well-developed strategy for achieving such targets. Also, while this document considers partnership with the private sector, with local governments, and civil society-stakeholders in deploying CeCs, it has no plan of action for it to be realized. As a result, there is no evidence to prove that private and/or non-government community e-centers are being deployed on a national scale and within the government's community e-center umbrella.

- **Lead Agency.** In 2004, in creating the Commission on Information and Communications Technology (CICT), the national government recognized the presence of new realities in technology and business, i.e., digital convergence. Like many countries that seek to harness the power of ICT for national development, President Arroyo consolidated under one commission the various agencies that deal with communications and information technology (computers). However, recent developments seem to be undoing the gains of the past. EO 603 (s. 2007) ordered the *"return (of the) Telecommunications Office and all other operating units currently existing in CICT which directly support communications"* and placed them under the direct supervision and control of the DOTC. Significantly, however, these offices were told to also *"continue to carry out their organizational mandates and objectives."* It was even reported that the CICT has been placed under the supervision of DOTC.²⁹
- **Technology Bias.** Our universal access/service obligations are focused mostly on the rollout of voice services (i.e., fixed and mobile lines) as these were the major technologies at the time of issuance.

Currently, our indicators and targets still focus heavily on technologies and not on their usability. However, deployment of technologies, if unusable, is irrelevant. This is the reason for increased attention on

²⁹Arroyo reshuffles five government agencies" Manila Standard Today in http://www.manilastandardtoday.com/?page=news1_aug9_2007

involving “usability” in setting the indicators of ICT access.³⁰ For example, indicators should include measuring IT literacy or capability in using word processors, spreadsheets or in browsing the web, which will enable or allow access to web applications and content services.

- **Enforcement.** Not all telcos have been able to comply fully with the SAS rollout requirements. The NTC website published an assessment of the SAS which showed the following:

- 1) Two years after the SAS expired, six (6) operators, namely, Digitel, Globe, Bayantel, PLDT, Smart, and Piltel were able to roll out the required number of local lines and rural deployment, but were deficient in covering required areas.
- 2) Three (3) operators, Islacom, Capwire, and Philcom, were deficient in rolling out the required number of lines and required areas to be covered, but were able to meet rural development.
- 3) ETPI, which started the program at a later period, failed to roll out the required number of lines as well as to meet other requirements.
- 4) Both Extelcom and BellTel have not started with their rollout programs.³¹

The document also showed two recommendations and enumerated a number of steps to take to move forward what in universal access has remained un-acted upon.³² A major problem seems to be the prerogative of government (its capableness or willingness) to impose penalties upon those unable to comply with their respective service obligations.

- **Industry Consolidation.** The introduction of competition in the telecommunications sector and technological convergence has lead to industry consolidation (See Table 2). From five independent mobile service providers, there are now effectively only three cellular service providers in the country. There is also the probability of seeing vertically-integrated groups/alliances provide fixed and wireless telephony as well as Internet services, cable (entertainment) and content (see Table 2 below). For example, within the PLDT Group, PLDT covers fixed line services, Smart for mobile, and e-PLDT/Infocom/Smart for Internet and

³⁰ Andrew Clement, and Leslie Shade (1998). *The Access Rainbow: Conceptualizing Universal Access to the Information/Communications Infrastructure*. Information Policy Research Program. University of Toronto. Working Paper No. 10., p. 8.; Torero and Von Braun, 2006.

³¹ “Assessment of the Implementation of the Service Area Scheme” <http://www.ntc.gov.ph/whatsnew/sas.PDF> viewed 21 June 2007

³²The recommendations are: 1) Requiring the PTEs who are interested to secure a Certificate of Compliance and undertaking an expansion program to cover the unserved municipalities by adopting a technology neutral policy with flexibility in tariff application; and 2) The Government should lead in subscribing additional telephone facilities in local government offices to provide better service to their community.)

Home for Cable. Similarly, within the Globe Telecom, Inc. Group, Innove serves fixed lines and Internet, and Globe provides cellular mobile service. In the cable industry, while the merger of Sky and Home Cable businesses promised better cable programming, it generated concern from smaller cable operators over seemingly “monopolistic tendencies” that resulted from the merger.³³ This shows that the shape of the market structure is defined and altered by alliances, partnerships, mergers, and convergences across different types of services and companies.

Table 2

Vertical Integration in the Philippine Telecommunications Industry

	Alliance 1	Alliance 2	Alliance 3	Alliance 4
Telephony	PLDT	Innove	Digitel	Bayantel
Cellular	Smart / PILTEL	Globe Telecom / Innove (Touch Mobile) Islacom	Sun Cellular	Extelcom
Internet (ISP)	ePLDT /Infocom/ Smart (Broadband)	Innove/ Globenet	DigitelOne	SkyInet/ ZPDee
Cable ³⁴	Home Cable (now Central CATV)			Sky Cable (now Central CATV)
Broadcast				ABS-CBN

Source: Adopted from DOTC (2000) cited in Alampay (2005) and updated with data from PLDT (2006)³⁵ and Globe (2007)³⁶

- **Data and Measurements.** In 2000, data assessment done by the National Statistics Coordination Board (NSCB) showed that while majority of statistics on e-Readiness are available, *“there is a dearth of government-produced statistics in the usage of ICT.”* Further, the NSCB Task Force observed that *“core e-Usage statistics such as the number of Internet users, number of broadband internet subscribers, proportion of individuals using the internet by activity, location of individual use of computers and internet, household expenditures on Internet, number of websites, and number of internet hosts are not available.”*³⁷

³³ Melvin Calimag. “Philippines' 2 Largest Cable Firms To Merge Operations”. *Newsbytes News Network*. Available from http://findarticles.com/p/articles/mi_m0NEW/is_2001_April_4/ai_72736339

³⁴ PLDT (past owner of Home Cable) and the Lopez Group of Companies (owner of Sky Cable) are now partners in the combined Sky-Home Cable business, with the PLDT group owning a 33.33 percent stake and the Lopez group the remaining 66.67 percent in Central CATV (company owning both the Sky and Home brands). See http://www.mydreamtv.com/portal.php?topic_id=327

³⁵ Philippine Long Distance Telephone Company. *PLDT Financial Review 2005. Management's Discussion and Analysis of Financial Condition and Results of Operations*. <http://www.pldt.com.ph/>(accessed June 2007)

³⁶ Globe Telecom, Inc.. *SEC Form 17A, 2006 Annual Report Pursuant to Sec 17 of the Revised Securities Act*. http://www1.globe.com.ph/uploads/Globe_2006_SEC17A.pdf (accessed July 2007)

³⁷ C. Astrologo. *ICT Statistics. Show me the Data!* NSO.

In the process of writing this paper (or seven years since the NSCB assessment), there remains difficulty in locating reliable data on Internet access in the country. As noted by Alampay (2005), NTC data relies heavily on registered Internet service providers, so that estimates on the number of Internet users are expectedly lower than the actual. According to Nielsen's³⁸ latest study on Internet use in the country, most Filipinos use the Internet from public access points; but these modes of access may not be covered by NTC statistics. It is notable that, the 2005 figure of Internet subscribers, according to NTC, is only 1.4 million, while the Internet World Stats³⁹ documented 7.82 million users (or 9 % of the population) as of March 2007.

We need to have a mechanism that can account for the actual number of people who access the Internet (either through public facilities or homes), and the reasons for the access, and in turn, this information can provide the basis for effective policy-making.

2. **Opportunities.** There are a certain number of opportunities on which to build new universal Internet access strategies:
 - **Remarkable Rise in Cellular Mobile Subscription.** While the number of installed and subscribed fixed lines stagnated and declined slightly in recent years, mobile subscription has risen rapidly. The killer application for the (2G) cell phones is not voice telephony but SMS. Aside from P2P communications and entertainment, a variety of government and telecom-initiated services and applications have been made possible through SMS. Further, mobile technologies already allow access to the Internet using GPRS, EDGE, Third Generation Mobile (3G) and HSPDA technologies. The latter presents great opportunities to deliver information and services to the unserved areas in new and yet unimagined ways.
 - **The emergence of Next Generation Networks.** Telecommunications companies are beginning to roll out Next Generation Networks (NGN). The International Telecommunications Union (specifically the ITU-T) defines NGN as "*a packet-based network able to provide services including Telecommunication Services and able to make use of multiple broadband, Quality of Service-enabled transport technologies and in which service-related functions are independent from underlying transport-related technologies. It offers unrestricted access by users to different service providers. It supports generalized mobility which will allow consistent and ubiquitous provision of services to users.*" Unlike the

³⁸ Nielsen Media Research Group, *The Online Filipino: Philippine Internet Landscape*, March 2007.

³⁹ <http://www.internetworldstats.com/stats3.htm>

current telecommunications networks that are circuit switched and optimized for voice, NGN which uses Internet Protocol (IP) and Multiprotocol Label Switching (MPLS) can easily transport voice, data, and media such as the video. All over the world, telcos have begun rolling out their NGNs. In the Philippines, as early as 2006, PLDT had put on trial NGN facilities in selected areas.

The introduction of IP-networks is also significant in that it allows for the separation of physical infrastructure and services, thereby creating new ways of doing business. As has been noted by an InfoDev study on Open Access Models, "instead of needing a small number of large, vertically-integrated organizations (as in the telephony model), it is possible (using IP-networks) to have extremely diverse 'ecosystems' with a mixture of small, medium and large organizations."⁴⁰

- **New Technological Possibilities to Connect the Last Mile.** There are now a variety of ways to provide connectivity to rural and remote areas. These range from dial up, Asynchronous Digital Subscriber Line (ADSL) for those with fixed lines, wireless broadband through Wireless Fidelity (Wifi) or GPRS or EDGE technologies for GSM networks, broadband Very Small Aperture Terminal (VSAT), and Worldwide Interconnectivity for Microwave Access (WiMax). For instance, the CeC in Malapatan establishes connectivity through fixed wireless broadband deployed by an Internet Service Provider in collaboration with a local telecommunications company, while the CeC in Manolo Fortich uses DSL⁴¹. Even in Metropolitan Manila, telcos offer fixed wireless telephony and Internet services.
- **Opportunities from Converging Technologies.** Convergence also presents new opportunities for providing connectivity and access to services. The convergence of telecommunication, broadcasting and computing technologies, play an important role in the strategies of telecommunication companies to make their services marketable and affordable to consumers. Converging technologies have also offered other possibilities for accessing the Internet, such as through cable and wireless. With services being bundled together, companies can now provide a variety of services beyond voice while still using the same infrastructure.

Convergence is not only happening in network but also in access devices. The cellular phone maker Nokia has billed its N series phones as "a single

⁴⁰"Open Access Models: Options for Improving Backbone Access in Developing Countries (with a Focus on Sub-Saharan Africa" InfoDev, pp.19-20.

⁴¹Last Mile Initiative (2007). Last Mile Initiative website, www.lastmileinitiative.ph/

multimedia computer.”⁴² It has advertised the N96 as “the computer done beautifully.” The Apple iPhone is not only able to make telephone calls but also surf the Internet (using either EDGE technology or WiFi), send and receive email, voicemail and SMS, and play stored music (in MP3 or MP4 format) and video. With these smart devices, computers per se no longer have exclusive access to the Internet and the Web. At present, one can easily imagine a CeC that need not rely on computers but on these smart devices.

- **Internet is not regulated.** Under Philippine law, the Internet is classified as a “Value Added Service” hence subject to minimal regulation. Rules or even having to secure a congressional franchise can hinder or limit significantly the spread of Internet. Also, minimal regulation, particularly that which disables power to control, is good for innovation.⁴³

Towards a Policy and Strategy

The Philippine government should formally adopt a Universal Internet Access (UIA) policy and identify a lead agency to implement it. This policy should aim to provide all Filipinos with easy, affordable and usable access to information goods and services that will promote a just, democratic and inclusive society. The UIA policy should continue the overall thrust of government for a market-based, private-sector information infrastructure development. A key feature of this new strategy would be to focus less on promoting Internet take-up through affordability (“low rates” or free access through CeCs) and instead place more effort on increasing the value derived from online services. This would mean a reorientation of the role of national government agencies from providing Internet access points/centers to creating online (digital) content. The UIA policy would also define an enhanced role for local governments.

The Philippine Universal Internet Access Policy and Strategy should have the following elements:

1. Pro - Competitive Market Policy Environment

Our experience with telecommunications monopoly and market liberalization and competition proves that a market-based strategy to building an information infrastructure is a more suitable approach.

⁴² <http://www.nseries.com/index.html>

⁴³ Lawrence Lessig, “Innovation, Regulation, and the Internet” *The American Prospect* November 30, 2002 http://www.prospect.org/cs/articles?article=innovation_regulation_and_the_internet

In pursuit of this pro-competitive market approach to ICT development, government should seriously consider adopting the following policy reforms to curb market inefficiencies:

- Technology Neutrality. Given the rapid speed at which technologies emerge, policies hinged on the deployment of particular technologies tend to be irrelevant after a few years. Thus, instead of specifying technologies that telecommunications companies must roll out (i.e., fixed lines), government must adopt more technology-neutral policies. Facilities may be deployed following a CeC format, but government must allow the private sector to determine which appropriate and cost-efficient technologies are to be deployed for as long as they meet conditions set by government (i.e., accessible services). Further, as we shift focus from technology to usability, the challenge is for the private sector to develop technologies and deployment strategies that will encourage marginalized groups, such as the uneducated, farmers, or handicapped, to use and consequently to benefit from the Internet.
- Competition Policy Framework or Law for the Information Economy.

According to the NTC Consultative Document on Competition Policy for the ICT Sector, the core market-competition problem in the industry is *"the unchecked behavior by some dominant carriers of leveraging the power that they hold in one market into another."*⁴⁴ Already, *"the lack of effective competition in one market has spilled over into another, thereby transforming markets such as VAS that used to be fertile ground for competition by small and medium-sized service providers into a concentrated, carrier-dominated market."* The document concludes that *"all three submarkets in the industry can now be considered dominated by a few vertically and horizontally integrated service providers."*

A competition policy framework or law would help promote competition among ICT companies and would level the playing field among small, medium and big players. It is therefore important for government to continue to promulgate policies and rules that would enhance competition (and prevent anti-competitive practices) in the ICT sector. And, following the suggestion of Carl Shapiro, this competition framework or law should focus on the areas of horizontal mergers, vertical mergers, standard-setting and cooperation, and the conduct of dominant firms.⁴⁵

⁴⁴ NTC, "Consultative Document on the Development of a Competition Policy Framework for the Information and Communications Technology Sector", Available from www.ntc.gov.ph

⁴⁵ Carl Shapiro "Competition Policy in the Information Economy" University of California at Berkeley August 1999, p. 6 in <http://faculty.haas.berkeley.edu/shapiro/comppolicy.pdf>

- Open Communications Policy. Government should seriously consider adopting a policy that would allow open access to networks. According to Wikipedia, "*open Access in the context of Communication (Open Communication) means that anyone, on equal conditions with a transparent relation between cost and pricing, can get access to and share communication resources on one level to provide value added services on another level in a layered communication system architecture.*"⁴⁶
- Broadband Bill of Rights. In order to ensure the free flow of information, supported by basic principles of openness (of access), equality (of data), diversity (of content), and freedom (of expression) that have long characterized the Internet, government should consider the adoption of a "Broadband Bill of Rights" as proposed by the Center for Digital Democracy.⁴⁷ This Bill of Rights includes the following 10 principles:
 1. *Choice:* Open-access regulations are needed to ensure that independent Internet service providers (ISPs) and content producers will be able to offer their services on all broadband platforms, enabling users to enjoy the same full range of programming via broadband.
 2. *Nondiscrimination:* No transport-management schemes (e.g., policy-based routing) should be used simply to favor certain programming over other content, by artificially constraining "competitive" or non affiliated fare.
 3. *Privacy:* Existing privacy regulations need to be extended to include all interactive media, regardless of means of delivery.
 4. *Open Systems:* The Internet's "end-to-end" architecture must be preserved, and to the extent that "walled gardens" offer only a subset of Internet content, they should be clearly labeled.
 5. *Interoperability:* Set-top boxes should be both non-proprietary (i.e., interoperable among cable systems) and transparent (i.e., user configurable).
 6. *Public Interest Obligations:* The public-interest principle should inform the world of ITV as well. A small portion of the extra capacity that broadcasters have gained in the switch to DTV, as well as the enhancements that cable operators will offer under ITV, should be devoted to community-based informational and educational purposes.
 7. *Civic Content:* The broadband revolution should be harnessed, in

⁴⁶ http://en.wikipedia.org/wiki/Open_Communication

⁴⁷ <http://www.democraticmedia.org/billofrights.html>

some small measure, to serve the needs of civil society, including enhanced campaign coverage, community forums, cultural programming, and noncommercial information exchange.

8. *Educational Opportunities*: The new interactive media of broadband should serve all aspects of lifelong learning, meeting the educational needs of young and old alike through pre-school programming, supplementary classroom material, distance learning, vocational training, and other educational fare.

9. *Children's Programming*: The meager requirements for children's programming on television should be supplemented in the broadband era.

10. *Digital Divide*: Even as we close the gap that separates the connected from the unconnected, we must make certain that new, more subtle forms of digital inequity do not arise, in which the haves vs. the have-nots are replaced by the haves vs. the have-mores.

- Spectrum Management Review. Spectrum management has become an important ICT policy concern in light of the growing importance of wireless technologies in extending ICT goods and services nationwide. Spectrum management is defined as the "*planning, coordinating, and managing joint use of the electromagnetic spectrum through operational, engineering, and administrative procedures.*"⁴⁸ Its objective is "*to enable electronic systems to perform their functions in the intended environment without causing or suffering unacceptable interference.*"⁴⁹

Recognizing this, it has been suggested that the NTC "*start on the difficult task of reviewing its spectrum management policy to arrive at a better allocation and assignment of spectrum rights.*"⁵⁰ This review would include the allocation and assignment of current radio spectrum bands, a determination of the optimal allocation and assignment method, and a reallocation of the spectrum to its most efficient allocation and assignment. It has been suggested further that NTC should consider shifting away from the administrative allocation and assignment approach (or 'beauty contest') to a market-based mechanism (auctions) to allocate spectrum.⁵¹

If a review is indeed undertaken, then it is also wise to consider issues and recommendations made by the United States government's spectrum

⁴⁸ <http://www.thefreedictionary.com/spectrum+management>

⁴⁹ Ibid.

⁵⁰ Gilbert Llanto. "Reviewing the Philippines' Spectrum Management Policy". *PIDS Policy Notes*. Philippine Institute for Development Studies", December 2006. Available from <http://dirp4.pids.gov.ph/ris/pn/pidspn0611.pdf>, p.8

⁵¹ Ibid.

task force for possible adoption in the Philippine context. These are:

- (a) (to develop) *"a modernized and improved spectrum management system;*
- (b) (to make) *policy changes to create incentives for more efficient and beneficial use of spectrum and to provide a higher degree of predictability and certainty in the spectrum management process as it applies to incumbent users;*
- (c) (to provide) *policy tools to streamline the deployment of new and expanded services and technologies, while preserving national security, public safety, and encouraging scientific research; and,*
- (d) (to provide) *means to address the critical spectrum needs of national security, public safety, transportation infrastructure, and science."*⁵²

Further, a review of current spectrum policy should not remain within the bounds of dominant (property rights-based) views. The alternative or 'commons' approach to spectrum management should also be considered.

Its proponents suggest that implementing a 'commons' spectrum regime would be beneficial as it creates an environment for innovation. They point to the US FCC "Part 15" rule, which gives permit to unlicensed emitters, as a key to the development of systems for spreading spectrum technology into cordless phones, and wireless broadband networks into neighborhoods, short-range wireless LANs and wireless home networks (such as WiFi).⁵³ Further, they argue that technological developments (including ultra-low power code division multiplexing and spread spectrum technology) eliminate the necessity of assigning a specific spectrum band/channel to a user.⁵⁴

A commons spectrum regime would have the following characteristics: (1) coordination (or interference avoidance) is achieved through technical etiquettes built into devices; (2) subject to compliance with technical etiquettes, there is no restriction on entry; and (3) a collective agency determines these technical etiquettes, which can include a maximum power limit, communications protocols such as listen-before-talk, or a required level of interference robustness of devices such as minimum

⁵²(US) Federal Government Spectrum Task Force "Spectrum Policy for the 21st Century – The President's Spectrum Policy Initiative: Report 1" in http://www.ntia.doc.gov/reports/specpolini/pressspecpolini_report1_06242004.htm

⁵³Gerald R. Gerald R. Faulhaber and David Farber "Spectrum Management: Property Rights, Markets, and the Commons" http://rider.wharton.upenn.edu/~faulhabe/SPECTRUM_MANAGEMENTv51.pdf, p. 10

⁵⁴Johannes M. Bauer "Spectrum Management: Private Property Rights or Commons", p 121.

signal-to-interference tolerance.⁵⁵

Recognizing the efficiency of the market in allocating resources and the role of the commons in promoting innovation, Gerald R. Faulhaber and David Farber have proposed a new spectrum management model, i.e., a “market-based ownership with non-interfering easement regime”. In this model, “ownership of the spectrum is subject to an easement that any and all users that did not meaningfully interfere with the owner’s right to the spectrum could not be excluded from using the spectrum.”⁵⁶ Another effort at marrying the ‘commons’ and the ‘property rights views is provided by Yochai Bankler.⁵⁷ What these two models propose is to incorporate a ‘commons’ approach to spectrum management in order to engender innovation. This should be taken seriously by countries which like the Philippines do not recognize the ‘commons’ in spectrum management.

2. NGAs and Services- and Content-Development

Government's universal access policy and strategy should shift away from promoting Internet take-up through affordability (“low rates” or free access through CeCs) to promoting the use of CeC to access the Internet by increasing the value derived from online services. Therefore, the national government should stop funding the construction and deployment of CeCs⁵⁸. The development of access points should be left to the private sector and/or through public private partnerships led by local government units (LGU). The role of the national government is to provide eGovernment services and information accessible via CeCs and other Internet access points. Thus, national government agencies currently funding their own community ICT centers should seriously consider re-allocating resources to content and services development.

A number of issues would emerge as a consequence of this shift to content and services development. There is the important decision of which online information and service should be charged at a low cost or for free. Moreover, we should be more concerned with how well such access provisions can fulfill individual needs and societal goals; and how access to these information and services can encourage and enable social, political, and economic participation. Clearly, there is a need to define a particular set of basic and accessible services.⁵⁹

⁵⁵Carol Ting, Steven S. Wildman, Johannes M. Bauer. “Modeling the Efficiency Properties of Spectrum Management Regimes”.

⁵⁶Faulhaber and Farber “Spectrum Management: Property Rights, Markets, and the Commons”, p. 14.

⁵⁷For a detailed discussion of the “spectrum commons”, refer to Yochai Bankler, “Some Economics of Wireless Communications”, 16 *Harvard Journal of Law and Technology*1 (Fall 2002). Available from <http://jolt.law.harvard.edu/articles/pdf/v16/16HarvJLTech025.pdf>

⁵⁸Nonetheless, government must pursue funding the development of internet access centers in public high schools (i.e. iSchools).

⁵⁹Karim, et.al., 1998 cited in Clement and Shade (1998).

Existing research on CeCs provide an analysis of information and services deemed useful in pushing development in specific rural community contexts in the Philippines.⁶⁰ Such studies may help guide the development of services and content and in strategizing its deployment in telecenters. From other studies, we already know that, globally, education, health, agricultural and livelihoods support, and public safety are the major services provided via telecenters.

In fact, there are already local initiatives in these areas that can immediately be made available to Filipinos through CeCs. Among them are:

- The **Farmers' Information and Technology Services (FITS)**, a service facility aimed at providing farmers, entrepreneurs and other clients access to information and technology. To date, there are already 203 FITS centers hosted at various institutions all over the country. The FITS Information System (FITS IS) has 6 database modules, namely, technology, experts' profile, farmers' profile, contact firms, technology and publication; and,
- **Buddyworks** of the National Telehealth Institute, which uses ICT to provide and support health care for underserved communities and geographically remote areas where health care expertise is largely unavailable. Buddyworks currently provides health care assistance in the following domains: dermatology, internal medicine, obstetrics and gynecology, pathology, radiology and toxicology.

Internet-based content, which will be accessible through Community e-Centers, may be supplemented by e-commerce-enabled information systems from key government agencies (e.g., NSO, NSCB, LTO, LRA, DFA, and GSIS).

Government must properly fund content and applications development.⁶¹ Along these lines, the eGovernment Fund must be maximized in order to develop more online services and digital content that can directly be availed of. Front-line government agencies should also devote a specific portion of their budget to online content and/or services development.

Even as government should provide more online information and e-services, its agencies are not necessarily the best agencies to digitize public information or develop e-Government applications that would be accessible through CeCs. The private sector is better equipped for this and should do the work for

⁶⁰See, for example: Alampay and Joel Umali, "High Impact, Pro-Poor e-Governance Applications. Identifying 'Killer Applications' and Best Practice Models of E-Governance through Community e-Centers in the Philippines". United Nations Development Program; and Mary Grace Mirandilla and Joel Umali's "Achieving Universal Internet Access in the Philippines through Community Telecenters. A Final Report." September 2006 (CRC).

⁶¹It must be underscored that the content and services that would be developed for the CeCs should be accessible through a variety of devices (i.e., 3G phones, computers, etc).

government. Further, allowing the private sector to develop these services and content can additionally stimulate the local content development industry.

The shift to content and services development would also boost the prospect of democracy in the country. Access to information is the foundation for responsible citizenship and active participation in politics and decision-making.

3. The Role of Local Governments

To create demand for telecenters and facilitate the emergence of markets for access gap areas, some countries like India tap local governments to lead the setting up of community-based or local access networks.⁶² Some local governments partner with NGOs or community-based groups, while others allow private enterprise/ entrepreneur-led services. Similarly, our local government units can be tapped to lead the development of local access networks.

The role of local government units in providing information services to Philippine communities has legal bases. The Philippine Local Government Code of 1991⁶³ mandates municipalities to include among its basic services "*information services on investments and job placement information systems, tax and marketing information systems, and maintenance of a public library.*" Also, the Code provides that barangays (the basic local government unit) must include an *Information and Reading Center* as one of its basic facilities.

Further, in recognition of the "*vital role of knowledge and information in nation-building,*" RA 7743 (s. 1994)⁶⁴ mandates every congressional district, city, and municipality to establish public libraries, and reiterates that each barangay establish its own reading center. The law calls for these public libraries and information centers to be made "an integral part of the development plan of each local government unit." Public libraries are expected to "*make available a wide array of reading materials...and be used as a venue for audio-visual presentation in the community and other kinds of activities aimed at increasing the literacy rate by government agencies, non-governmental organizations or private entities in the dissemination of information of general interest.*" As of January 2007, there have been 1,140 public libraries set up in the country, representing compliance by 75% of cities, 36% of municipalities, and less than 2% of barangays⁶⁵.

⁶² Siochru and Girard, 2005.

⁶³ Government of the Philippines. Republic Act 7160, "Local Government Code of the Philippines", Book I, Title 1, Chapter 2, Section 17 (b), 1991.

⁶⁴ Government of the Philippines. Republic Act No. 7743. An Act Providing for the Establishment of Congressional, City and Municipal Libraries and Barangay Reading Centers Throughout the Philippines, Appropriating the Necessary Funds Therefor and For Other Purposes, June 17, 1994.

⁶⁵ Prudenciana Cruz. The National Library and the Public Library System in the Philippines.

EO 130 (s. 2002) took advantage of this role by local governments, specifically barangays, to establish information centers by directing them (with the help of city and municipal governments) to set up the "*Gabay sa Mamamayan Aksyon Centers*" (GMACs). The GMACs are envisioned to serve as the "*institutional link between the national government and the grassroots, ensuring the adequacy and accessibility of quality information about national government programs and services to the community residents.*"⁶⁶ Although EO 130 does not require GMACs to set up computers and Internet access, the DILG intends to move in that direction. Thus, in 2003, in partnership with its Local Government Academy, the DILG set up the "Virtual GMAC", a portal for accessing a variety of local and national government services meant to serve as content for the GMACs.⁶⁷

According to the DILG's National Barangay Information Service, this project did not take off as planned. This was due to the project's political associations and a shift in priority by DILG leaders from barangay to local chief executive levels,⁶⁸ insufficient supply of information materials, and lack of funds and support from city and municipal governments. In spite of this, the project was not shelved, nor was there an issuance to discontinue the GMACs. The DILG thus still monitors the barangays that have established centers and those that have set up computers with Internet access. It is also preparing a study on the GMACs. Of note are barangays who partnered with local NGOs and municipal governments that managed to receive grants for computers and Internet access.

These legal mandates given to local governments to establish information centers and public libraries, complemented by good implementation mechanisms and funding support, can serve as foundation for the greater role of LGUs in pursuing universal Internet access.

4. Universal Service Fund vs. Mandatory Obligations

The Universal Access Fund (UAF) has been the traditional answer to fund network (infrastructure) development in under- and un-served areas. The UAF is good in theory and has been proven to be an efficient strategy in some countries. However, in certain cases, such as in Brazil, bureaucratic difficulties have hindered the proper use of funds.⁶⁹

<http://www.ndl.go.jp/en/publication/cdnlao/045/453.html> . Updated figures (as of January 2007) from Mr. Sancho Dumenden, Head, Public Libraries Office, National Library of the Philippines.

⁶⁶Executive No. 130, Establishment of the Gabay sa Mamamayan Aksyon Centers in the Barangays, September 2002. Available from <http://www.mgb.gov.ph/latestorders/EO-130-2003.pdf> (accessed July 2007)

⁶⁷<http://www.lga.gov.ph/gmac/about/about.php> (accessed July 2007)

⁶⁸ After the issuance of EO 107 in 2002, the DILG submitted a proposal to the CICT for the E-Government funding of the Local Government Information Portal which is intended to serve as an information base for Local Chief Executives to monitor the performance of LGUs.

⁶⁹ According to Carlos Alfonso (2007), Global Information Society Watch (2007), p. 120.

Given our country's track record in managing funds (think Coco Levy, etc.), it is quite likely that the Philippines will be faced with a predicament similar to Brazil if a UAF is put in place. Thus, the creation of a UAF is not recommended. An alternative to this is the new "mandatory service obligations" *a la* SAS. But instead of landlines, telcos would be required to put up and manage CeCs in under- and un-served areas.

Like the UAF, the revisited 'service obligations' will be a kind of tax imposed by government on telecommunications companies. However, telcos will not pay in cash to government, but like with SAS, they shall contribute in kind. This arrangement will tap private-sector resources to establish telecenters and allow this sector to strategize creatively to deploy ICT services to the public. The private sector must be allowed to design strategies according to technologies and business models they deem most suitable to optimize their investments, while ensuring that pre-identified services are efficiently provided at affordable costs through technology or platform they opt to utilize. The key here is for the private sector to develop a business model that will provide accessible, affordable and reliable access to the Internet. Government, on the other hand, should determine where CeCs should be located and should ensure reasonable pricing for access to services.

In designing the revisited mandatory service obligation, government must learn from the experience of SAS. It must design a program with the right incentive structure, a reliable monitoring process and a credible enforcement mechanism. Mandatory requirements should not be such that for telcos, compliance would be more costly than paying penalties.

5. The Private Sector and Public-Private Partnership

As a matter of policy, deployment and management of CeCs should be left to the private sector.

Already, some in the private sector, particularly telcos, are engaged in this line of business. Corporations in other lines of business, however, may also be interested in setting up and managing CeCs. For example, a corporation engaged in trading agricultural goods may be interested in setting up CeCs as e-Commerce centers, much like the e-Choupal in India. ITC is one of India's largest exporters of agricultural commodities, and its International Business Division (ITC-IBD) "*conceived e-Choupal as a more efficient supply chain aimed at delivering value to its customers around the world on a sustainable basis.*"⁷⁰ This system allows farmers to sell their produce -- wheat, soya, coffee, even shrimp -- directly to ITC. This setup eliminates middlemen, and thus increases

⁷⁰ http://www.itcportal.com/agri_exports/e-choupal_new.htm

profits for farmers while it reduces cost to consumers and end-users. ITC is also able to sell its products, such as seeds, flour and life insurance, directly to farmers.

Aside from a corporation-led business model, there are other business models for CeCs. These include Community-Entrepreneur led, LGU-led and NGO-led CeCs. Table 4 (below) identifies potential funding sources and revenue streams to sustain these four CeC business models.

Table 4

	Corporation-Led	Community Entrepreneur-Led	LGU-Led	NGO-Led
Variants	<ul style="list-style-type: none"> Telco - led (i.e. Smart Click) Corporation - led (i.e. Ayala, San Miguel Corp, SM) 	<ul style="list-style-type: none"> SME-led Cooperative-led IT School-led 	<ul style="list-style-type: none"> Barangay-led Town Mayor-led Provincial Governor-led Public School Superintendent-led 	<ul style="list-style-type: none"> Corporate foundation-led (e.g. Adopt a CeC project; Caritas telecenters in Macau) Funding agency-led Civic organization-led
Source of Funding	Corporate social responsibility funds, profits	Profits, loans	Regular LGU funds, CDF, grants/donations	Grants, donations and similar sources
Monthly revenue sources:	<ul style="list-style-type: none"> Voice Services (local/national/international calls, texting, phone cards) Data Services (Internet access, e-Mail accounts, PC rental), Business Center Services (domestic/international fax, telex, telegram, photocopying, scanning, typing/printing) Audio-Visual Services (business forms design/printing, audio-visual editing, web site development, hosting of SME websites) Training Services (computer literacy training, office systems software, basic internet access training, distance-education, e-Learning modules, IT-Enabled Services training) Community-based Services (agricultural price monitoring and trading, local content development and data-entry, local tourism-tour packages/booking) Special OFW Services (VoIP, e-Mail service + WebCam, job search and placement, PC to SMS services) Commercial Services (money remittance services, payment & collection services, e-Procurement services) e-LGU Services (barangay clearances, cedula, real estate tax payments, business permits & licenses, barangay complaints) National Government Services (online services from national government agencies, e.g. birth certificate from NSO, loans from SSS, PhilHealth, Pag-Ibig, contributions tracking from GSIS, passport renewal with DFA, overseas application tracking with POEA) 			

6. Community Open Access Networks.

Community or Local Open Access Networks are a special type of access initiative characterized by 'localized broadband'. Community Open Access networks are end user, rather than 'network' or 'operator' centric. They are about people - linking men, women and children; commercial and non-commercial organizations; public and private institutions, within the context of their physical communities.⁷¹

Community open access networks have true broadband capacity, they serve a specific local geographic community, they essentially serve as a public utility for the information society (and are intended for use by any party within the community), and most importantly, they are operated on an open basis (i.e., owned and controlled independently of any service or content, which runs over it). This enables any one connected to the network to take or provide content or service to or from any one with whom they choose to connect. Also, anyone connected to an open access network may be equally 'providing' or consuming content and application services.

The main driver for the development of these local open access networks is the belief in the importance of ubiquitous and affordable access to the economic and social development of the community. Through public-private partnerships, local open access networks can potentially accelerate citizen, business and government access to the Internet.

Local open access networks are now being implemented in various developing countries, including Ghana, Brazil, and South Africa and a significant number of these successful projects have been identified. These success stories suggest that the Philippines ought to consider encouraging local governments to pilot local open access networks as a means to complement its national infrastructure development strategy.

While it would be ideal for the private sector to fund these initiatives, local governments may need to fill the void and build "roads" in case the private sector is unable to provide the breadth of access society demands for all of its citizens.

7. Capacity Building.

The broadening of the definition of 'access' to mean more than the provision of access devices leads to the inclusion of capacity building in the UIA policy. Clearly, the speed of Internet-uptake in communities will be determined

⁷¹ Infodev and Oplan Foundation 2006, Lehr, Sirbu and Gillet 2004.

by the level of ICT literacy of its members.

Fortunately, CeCs are not only access points but can also serve as training centers. ICT literacy can be among the services that the CeC can offer. The appropriate government agency (TESDA) can accredit these CeCs for ICT training. Others may wish to partner with state universities and colleges or other educational institutions in delivering ICT training for the community.

Beyond ICT skills development, the CeCs can also serve as an alternative school or as specialized training centers. There are at least two groups that could immediately benefit from transforming CeCs into alternative educational institutions. These are the out of school youth (OSY) and agricultural extension workers.

[eSkwela](#) is the ICT-enhanced education program of the DepED Bureau of Alternative Learning System currently implemented as a pilot program with support from CICT. In four eSkwela centers, out of school youth learn to use for their studies digitized (multimedia) modules rather than text/work books. These multimedia materials can easily be put on the Internet and/or installed in CeCs to increase the reach of eSkwela program and help ensure more OSY receive a high school education.

The Department of Agriculture–Agriculture Training Institute is developing [e-Learning](#) modules for training agriculture extension workers. These modules will be accessed through CeCs.

8. Reviving the DICT and Strengthening NTC.

Given the increasing role of convergence in the development and deployment of new technologies, it is imperative to place under one umbrella various government agencies that at present are separately responsible for policy, regulation, and promotion of information and communication. This is certainly true in the drive to achieve universal Internet access. Achieving universality would require the participation of various government agencies at the national and local levels as well as of private and non-government sectors. There is thus a need for an agency to quarterback the whole process, thus, the creation of the Department of Information and Communications Technology (DICT).

The creation of the DICT must be supported by an enhanced budget and not merely by the sum or the combined budget of these merged agencies⁷². It should be understood that a significant portion of the budget of these agencies accrue to personnel services, which will not allow the proposed DICT to

⁷²Edna Espos (2003), “Institutions, Regulation and Performance: The Case of Philippine Telecommunications”. *Philippine Journal of Public Administration* vol. 47, nos. 1-4.

implement any substantial ICT development program or reform.

It is expected that the DICT would create conditions to support the direction of providing universal Internet access, which include:

- The development, adoption and implementation of a Government Interoperability Framework (GIF). A GIF is a set of standards and guidelines that a government uses to specify the preferred way that its agencies, citizens, and partners interact with each other. The GIF is not only important in enhanced government decision-making but it is also the key to a citizen-centric one-stop delivery of e-Government services through a variety of channels.
- Low Cost Computing. We must continue to promote the provision of low-cost computers to the population. For example, the PC ng Bayan was launched by the CICT in 2005, and the Philippine Computer for All Initiative (PC4All) in 2006.⁷³ The PC4All initiative aims to provide computers (with software) at a cost of only US\$200.00 (or P10,000).
- Free/Open Source Software. The use of Free/Open Source Software (FOSS) can help provide universal access by lowering the cost of computing and allowing access to a level of IT infrastructure not affordable through the proprietary route. According to its proponents, FOSS is not only a more stable and secure software but it also enhances opportunities for local capacity development and encourages innovation. Wide use of FOSS could also minimize unlicensed software use, especially in government agencies and academic institutions⁷⁴. The mandatory use of FOSS in government, however, is not advocated.
- The DICT can also push for laws that would move faster ICT development, in general, and UIA, in particular. Among the legislation that the DICT can support are:
 - an *E-Government Law* which will facilitate the use of ICT in the bureaucracy and support the development of e-Government content and applications that will enable the efficient delivery of government information and services online through community access points; and
 - a *Convergence Law* that will not only encourage convergence but also provide the necessary regulatory environment to mitigate its negative effects on the industry.

⁷³CICT (2006). *Philippine ICT Roadmap*. Section on Ensuring Universal Access to ICT.

⁷⁴ Ibid.

The efforts to strengthen the National Telecommunications Commission (NTC) to enable it to perform its functions as an independent regulator should be continued.

A law giving NTC commissioners a fixed term of office would help ensure the independence of the regulator from the appointing authority. In short, the law should grant NTC fiscal autonomy. However, these efforts at ensuring independence would mean little if the NTC budget is not increased. In order to discharge its functions effectively, its budget should be increased to allow for such purchases as long-needed equipment. A way to increase the NTC budget is to allow it to retain a portion of its revenues to fund its own operations.

9. Consistency with Overall Development Plans.

Any plan or program to achieve universal Internet access must emanate from a national development strategy. It is imperative for policy makers at the highest levels to recognize that even the best universal service/access policies will not on their own bridge the digital divide. Basic education, training and poverty reduction remain critical in facilitating equal access and use of ICTs by all members of society. We must ensure, thus, that human and financial resources devoted to the telecommunication sector in general, and universal service/access in particular, are commensurate with overall development goals.

Since this paper argues that the national government should refocus its activities from deployment of CeCs to the creation of national (media-rich) content, an Intellectual Property (IP) regime that is consistent with public access rights and protection for nationally (or locally generated) digital content must be promoted.

- ***Review existing IP regime.*** The impetus for revisiting our IPR policy is therefore the adoption of an IP regime that balances the respect for intellectual property rights with rights of the citizenry to information and knowledge. It is easy to argue that any country seeking to promote the use of local content (and is interested in becoming a global content development center) must assiduously support and enforce the existing global intellectual property regime. However, doing so may keep us as consumers rather than encourage us to be producers of digital goods.

Lawrence Lessig, among others, has argued that the dominant IP regime has been taken over by rent-seeking extremists so that it now burdens the spread of knowledge worldwide. As painstakingly argued by Peter Drahos and John Braithwaite:

intellectual property rights deliver rewards to a comparatively small number of star artists whose works are pumped through the distribution networks commanded by the likes of News Corporation, Sony, Viacom or AOL Time Warner. For the rest (the majority) they remain largely an empty promise. They deliver little to artists involved in systems of national cultural production.⁷⁵

Without necessarily embracing these (and other) harsh criticisms of the global IP regime, it is nonetheless important for government to be wary of the "contemporary institutional push to redistribute property rights unequally." As Nobel laureate in economics and former World Bank chief economist Joseph Stiglitz argues, "intellectual property is important, but the appropriate intellectual-property regime for a developing country is different from that for an advanced industrial country."⁷⁶

The Philippines should seriously consider alternative forms of protecting intellectual property such as the use of a *Creative Commons License*.⁷⁷ This is a unique licensing regime that maximizes the potential that the Internet makes possible for the creation, distribution, and use of creative content. This license, which is free and easy to obtain, would provide a unique regime for the protection as well as the distribution of content over the Internet.

The Philippines would do well to consider alternative licensing schemes in defining its own IP regime and not merely follow the lead of developed countries. At stake is not only the right of its citizens to information but also the ability of its local industries to innovate and penetrate the global market for content and services.

10. Addressing Data Gaps.

Some of the key parameters for the universal Internet access strategy have to be defined in order to design and implement a comprehensive, pragmatic and well- targeted program. Careful decision-making will be necessary in defining specific parameters, including geographic and population coverage, services coverage and selection and sequencing of localities. For example, this should include "access gaps" or those social segments likely to be "left out" by market forces acting alone and hence in need of protection via public initiatives. There is thus need for better data.

⁷⁵Peter Drahos with John Braithwaite *Information Feudalism*

http://www.anu.edu.au/fellows/jbraithwaite/_documents/Manuscripts/Information_Feudalism.pdf

⁷⁶Joseph Stiglitz "Intellectual-property rights and wrongs" Daily Times

http://www.dailytimes.com.pk/default.asp?page=story_16-8-2005_pg5_12

⁷⁷www.creativecommons.org

This year, the National Statistical Coordination Board (NSCB) organized an Inter-Agency Committee on ICT Statistics (IAC-ICTS) and chaired by the CICT. The NSCB has an inventory of available ICT indicators in the Philippines although this can be improved to supply information that will be critical in determining demand and in formulating ICT policies. This implies that we need to carry out an inventory of indicators and statistics of our current and future states of universal service and universal access. These indicators and statistics should include:⁷⁸

- Geographic/Population Coverage. This is a most important parameter. Our universal access goal is connectivity at the barangay level by 2015. We need to identify specific rural areas or localities that have and do not have access.
- Actual Network Coverage. Analysis must include all networks and technologies that can be used in providing mandatory services. Analyzing this aspect, together with data of actual population distributions, will allow us to determine which populated areas or localities are currently not covered by the network.
- Disaggregated Access Data. There is a need for actual access to the network to communicate, as opposed to mere network coverage. Hence, it is necessary to have data on the subscribership to the fixed or mobile network and to the Internet, and this data must be disaggregated across regions. It is ironic that we often stress priority over universal access but we have no reliable data to illustrate or represent the population number who access the Internet, from where is it accessed, i.e., the home or from CeCs, for what purpose, and which areas have no access at all. This data would be useful in determining the extent to which the Internet is actually expanding and will be critical in programming our interventions.
- Available Content and Services. We need to identify content and services that are already available so that we can plan and strategize the development of additional content.
- Affordability assessment. We need to collect data on individual or household expenditures on telecommunications and other services. Combined with income data (preferably by region and sub-region), this information will allow us to have a better idea of the current and expected affordability of telecommunications services by each region.

⁷⁸ With guidance from Hank Intven and McCarthy Tetrault (2000). *Telecommunications Regulation Handbook- Module 6: Universal Service*. InfoDev. The World Bank.

- Sector-specific data. We need to collect data representing usage of various sectors, such as agriculture.
- Gender-specific data. We need to identify gender-related areas where universal Internet access must be addressed.

It is notable that the Philippine Statistical Development Plan (PSDP 2005-2010) has included the collection and gathering of statistical data on ICT indicators from the barangay to the national levels. The PSDP ICT statistical framework contains a list of indicators on e-business, e-government, information infrastructure and human capital development. The development of statistics on ICT is aimed at addressing current information gaps and emerging data requirements towards monitoring the benefits of ICT policies, programs and services, assessing ICT resources and potentials, and measuring its contribution to national development.

Concluding Statement

We are three years away from 2010, APEC's self-imposed target for universal Internet access.

Clearly, we are behind in achieving this APEC target. A cause for anxiety is a looming deadline. Another is the serious implications of imbalance in ICT access. Recent research suggests that the rollout of infrastructure in which wealthy and urban areas are favored have led to greater national divergence in incomes.⁷⁹ We need to pursue vigorously a universal Internet access policy because the Internet and its widespread use can significantly help stimulate innovation and economic growth. Universal Internet access can also have a positive impact on citizenship and democratic governance in the country. Thus, as has been noted by both analysts and activists, "*providing access for all is a policy area in which promoting social justice and inclusion is in harmony with economic efficiency.*"⁸⁰

⁷⁹ Forestier et. al 2002 cited in Sean O' Siochru and Bruce Girard (2005). Community-Based Networks and Innovative Technologies: New models to serve and empower the poor. A Report for the UNDP.

⁸⁰ Damian Tambini is a fellow at the Institute for Public Policy Research and UK government's adviser on communications policy. His publications include *Cyberdemocracy* (1998) Routledge; and, *Citizens, Markets and States* (2000) Oxford University Press.