Applying the Digital Opportunity Index to the Philippines

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Information and Communication Technologies (ICTs) are potentially powerful tools that can bring about socio-economic and political development and change when people have access to them. They can be utilised to help reduce poverty and socio-economic disparities, as well as provide connection and access to people who are traditionally marginalised.

A decade of telecommunications sector reform on the one hand, and the rapid development of ICTs and the pervasive effects of their deployment and use on another, have made evident the need for standardized and comparative indicators to measure the sector's performance, its effects on various aspects of society, and the progress thus far in building an Information Society.

It is thus laudable that the ITU, the Korean Ministry of Information and Communication, and the Korea Agency for Digital Opportunity and Promotion (KADO) have developed the Digital Opportunity Index with the goal of measuring and benchmarking the world's progress towards building such a society. Indeed, a globally-accepted, standardised set of indicators that can make comparisons accurate and meaningful at the regional, national, and international level is essential in tracking development as well as providing useful information on areas that need further effort. However, it is important that such a benchmark be appropriate for developing countries, where the disparities in digital opportunity are most evident.

This paper applies the Digital Opportunity Index to the case of the Philippines and assesses what the indicators say about the progress of reforms in the ICT sector thus far as well as what areas need further attention for reform. It begins the analysis by presenting the context and background of the ICT sector in the Philippines, detailing the

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reforms that have led to current developments in the sector, and highlights the interesting case of the virtual explosion of the use of SMS in the country. The paper then analyzes what the DOI score of the country implies, emphasizing the areas that need state and private sector consideration. The paper then looks into what the DOI misses out on by providing examples based on the Philippine experience. The final section concludes the paper by reflects on what reforms the Philippines needs and how to improve the DOI.

The Liberalised Telecommunications Sector in the Philippines

In today's "Information Age," a country's telecommunications infrastructure is one of the most critical components underlying its capacity to participate in the global economy. In particular, communication networks that link people together are essential in facilitating information exchange whether it is via the telephone, email, or the internet. In recognition of this, the United Nations General Assembly in 1997 adopted a resolution declaring access to communication as a basic human right.

Yet, in most developing countries, access to basic telephony is not readily available. The Philippines is one such example. In the early 1990s, the famous joke about applying for a telephone connection in the Philippines was that it was an ordeal that would surely test one's patience. Years would pass before any progress occurred, and when the line finally came, the dial tone often lagged behind![2]

All of this has changed. Today, Singapore's former PM Lee Kuan Yew's quip that 99% of Filipinos are waiting for a phone while the remaining 1% is waiting for a dial tone[3] does not apply any more. Nowadays, it takes at most three working days for a fixed line telephone to be installed (with a dial tone). And if one buys a mobile phone, the connection is almost instantaneous.

[2] One study points out that in the Philippines in the 1980s the average waiting time for a fixed line telephone is 14 years! See Ravi Ramamurti, "Why Haven't Developing Countries Privatized Deeper and Faster?" *World Development*, Volume 27, no. 1, January 1999, pp. 137-155.

[3] Shiela Coronel, "Monopoly" in *Pork and other Perks* (Manila: Philippine Center for Investigative Journalism, 1998), p. 136.

The remarkable growth in the Philippine telecommunications industry is proof that competition leads to the provision of better and innovative services at more affordable prices. From a country with a teledensity of less than one telephone for every 100 persons from 1970 to 1990, a decade of liberalisation has led to fixed line density of 7.76 and a mobile phone density of 41.3 in 2005. How did this change come about?

Table 1

Fixed Line Teledensity

Year	No. of Main Lines	Installed Teledensity	Subscribed
1992	740,033	1.17	1.03
1995	1,409,639	2.01	1.65
1996	3,352,842	4.66	2.55
1997	5,775,556	8.07	2.86
1998	6,641,480	9.08	3.41
1999	6,811,616	9.12	3.87
2000	6,905,962	9.05	4.01
2002	6,914,235	8.7	4.17
2005	6,538,387	7.76	4

Source: National Telecommunications Commission

Table 2

Mobile Teledensity

Year	Number of Mobile Phone Subscribers	Growth Rate (%)	Mobile Density
1996	959,024		1.37
1997	1,343,620	40.10	1.87
1998	1,733,652	29.03	2.27
1999	2,849,880	64.39	3.80
2000	6,454,359	126.48	8.46
2001	12,159,163	88.39	15.61
2002	15,383,001	26.51	19.36
2003	22,509,560	46.33	27.77
2004	32,935,875	46.32	39.85
2005	34,778,995	5.60	41.3

Source: National Telecommunications Commission

Table 3

TOTAL TELEDENSITY (Fixed + Mobile)

Year	Installed Teledensity	Subscribed	Mobile Density	TOTAL TELEDENSITY
1992	1.17	1.03	--	1.03
1995	2.01	1.65	--	1.65
1996	4.66	2.55	1.37	3.92
1997	8.07	2.86	1.87	4.73
1998	9.08	3.41	2.27	5.68
1999	9.12	3.87	3.80	7.67
2000	9.05	4.01	8.46	12.47
2002	8.7	4.17	19.36	23.53
2005	7.76	4	41.3	45.3

The tremendous growth in the sector, with its huge multiplier effect on the economy, was the direct result of liberalisation policies initiated in 1993 by then-President Fidel Ramos. In his inaugural speech in June 1992, Ramos argued that it was time to "dismantle the oligarchy whose rent-seeking elite have dominated the economy not through possession of skill at entrepreneurship or superior intelligence but through monopoly or access to political power."[4]

Telecommunications was one such industry -- dominated by the Philippine Long Distance Telephone Company (PLDT), a virtual private monopoly owned by a politically influential family. While there were about 60 provincial telephone companies, a government telephone system, and two international submarine cable companies before liberalisation, PLDT owned and controlled the infrastructure through which all calls passed. Through this, PLDT controlled over 95% of the market. Because of its monopoly position, PLDT neglected customer service and failed to upgrade its system. The National Telecommunications Commission (NTC), the industry regulator, was unable to compel PLDT to provide more phones, improve its service, or protect the consuming public from the latter's monopolistic abuses.

[4] Fidel Ramos, "To win the future," inaugural address as President of the Philippines, Manila, 30 June 1992 in Fidel V. Ramos, *Developing as a Democracy: Reform and Recovery in the Philippines 1992-1998* (Hong Kong: Macmillan Publishers, Ltd., 1998), p. 4.

In 1993, Ramos issued two executive orders that revolutionized the industry. The first, Executive Order 59, provided for mandatory interconnection among all telephone companies. It also empowered the NTC to set the terms of interconnection in case the parties could not agree. The second, Executive Order 109, laid down the "Universal Service Policy," which divided the country into 11 service areas for nine new telecommunications companies to serve. EO 109 allowed new companies to invest and establish their own international gateway facilities and mobile telephone systems as long as they installed a certain number of landlines throughout the nation. Cellular phone companies were required to expand the national infrastructure by installing 400,000 lines in three years, while international carriers were required to put up 300,000 lines in five years. Companies were given both profitable and unprofitable areas of operation in order to modernize the telephone system and to increase the national teledensity of the country. In the face of new competition, the incumbent PLDT launched a massive expansion and upgrading program and doubled its fixed lines in about five years. To secure these reforms, the Public Telecommunications Act (Republic Act 7925) was enacted in 1995, providing a legal framework for liberalization of the industry.

From being dominated by PLDT, the telecommunications sector became very competitive with 11 international gateway, seven mobile telephone, 14 inter-carrier, and 74 local exchange services providers. By December 2000, 6.9 million new telephone lines were installed through the Service Area Scheme (SAS), and provided telecommunications coverage (via fixed line, cellular, payphone or public calling office) coverage to 92.9% of the country's 1,609 town and cities. By another measure, the liberalisation of telecommunications, from 1992 to 1997 has attracted total investment of P1 trillion in foreign and local investments.

Only four of the new players (Digitel, Globe, Bayantel, and Smart) were able to accomplish their landline commitments, while five (Islacom, Philcom, Piltel PT&T, and ETPI) failed to do so. Among the reasons cited for this failure was the onset of the 1997 Financial Crisis, which increased the cost of borrowing and dampened consumer demand for fixed lines.

The other unforeseen development was the substitution of mobile phones for fixed line telephones, as competition among the mobile phone led to the provision of affordable services, innovative packages, and the introduction of prepaid services. The use of mobile phones, which at the start of the 1990s was only affordable to those with high incomes, became accessible to lower income groups through the prepaid method introduced in 1999 by Globe Telecommunications. Also, intense competition among new entrants led to consolidation, from five to three mobile players: Smart, Globe, and Sun Cellular.

The reform of the telecommunications industry evidently led to economic and social gains. Today, corporate and individual users have clearly benefited from the introduction of competition as services have become available and cost has gone down dramatically.[5]

Clearly, competition and new technologies are driving developments in the telecommunications sector, making it a growth engine for the country's development. Telecommunications liberalisation has led to the provision of necessary infrastructure for economic growth as well as spurred economic development through huge capital investments. In addition, telecommunications companies have become the most profitable listed and actively traded companies in the Philippine Stock Exchange. Finally, the liberalised telecommunications sector is providing connectivity to Overseas Filipino Workers, thus alleviating the social costs of being away from their families.

The Case of SMS

One interesting phenomenon in the Philippines brought about by the pervasiveness of mobile phones is the country's love affair with text messaging.

[5] In another development in May 2005, the NTC issued its ruling on the use of Voice Over Internet Protocol (VOIP). VOIP is a new technology using internet protocol for voice applications instead of the expensive traditional switched telephone network. By categorising the use of VOIP as an enhanced service that can be offered by value-added service providers and not merely by telecommunications companies, the NTC opened the voice market to more competition. In response, telecommunications companies starting in September 2005 lowered their international direct dial (IDD) rates by at least 75%, from US$0.40 cents to as low as US$ 0.05-0.10 cents.

The first mobile phones introduced in the 1990s used analogue technologies. Their uptake was slow because of high cost of service and handset as well as poor billing and cloning problems. This situation led many Philippine telcos to shift to 2G technologies. By 1999, GSM became the dominant technological standard used in the country.

Short Messaging Service (SMS) or texting was first introduced in 1994 by Globe Telecoms as a free service to attract new subscribers. The use of SMS and mobile phones, however, did not take off until 1999 when Globe Telecoms introduced prepaid mobile services, which allowed subscribers to use a mobile phone without the cumbersome requisite of paying monthly bills.[6] In its prepaid service model, texting was a free added feature.

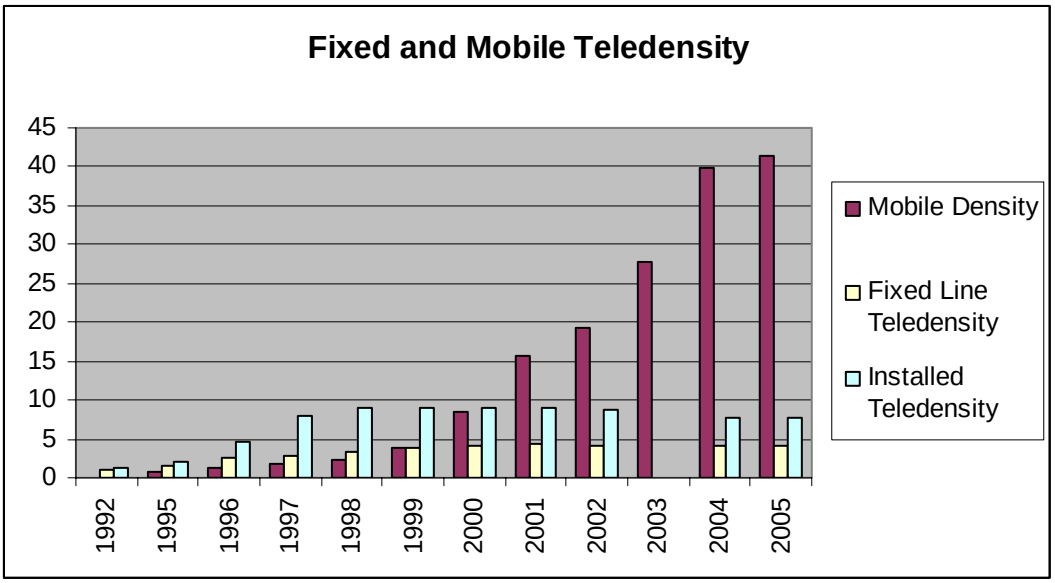
Figure 1 shows the sharp growth in mobile phone density started in 1999, leading to a 2005 mobile teledensity of 41.30, as the industry matured, with every 2 out of 5 adults in the Philippines owning a mobile phone. Figure 1 also shows the equivalent growth in fixed lines, which has grown in terms of installed teledensity from 1 to 8 but with a subscribed teledensity of only 4 per 100 in 2005.

As mobile teledensity rose, it became clear that Filipinos were not using their mobiles for voice calls. Rather, Filipinos were using their phones to send text messages. Analysts estimate that texting exceeds voice traffic by a factor of 10 to 1, with mobile phone companies now earning about half of their revenues from non-voice services. For instance, in its 2005 financial report, Smart, the leading mobile telco, earned P36.8 billion (US$707 million) from data services, exceeding revenues from voice services which totalled P34.3 billion (US$ 659 million).[7]

[6] In 2005, Smart Telecoms reported a subscriber base of 20,408,621, of which 20,128,543 (98.6%) were prepaid subscribers while only 280,078 (1.4%) were post-paid subscribers. See *PLDT Annual Report 2005: Broadbanding the Future.*

[7] See See *PLDT Annual Report 2005: Broadbanding the Future.*

Figure 1



During the first quarter of 2001, Meryll Lynch reported an average of 65 million texts each day by the approximately 7.2 million mobile phone users. In 2002, Nokia estimated that the 10 million cellphone users in the Philippines transmitted about 100 million text messages a day.[8] Both these estimates give an average of 10 text messages sent per subscriber per day.[9] The latest data from the National Telecommunications Commission, the industry's regulator, shows that by the end of 2005, the 41 million mobile phone users sent an average of 250 million text messages per day or an average of 6 messages per person each day.[10]

Why is this the case? First of all, texting is cheaper than voice calls. After its free introductory phase, telcos billed each message at US 2 cents each while voice calls cost

[8] Raul Pertierra et al., *Txt-ing Selves: Cellphones and Philippine Modernity*. Manila: De La Salle University Press, Inc., 2002 at http://www.finlandembassy.ph/texting6.htm. The authors also cite reports that the Philippine Postal Office since 2001 has experienced a decline in the amount of posts and letters it handles during Christmas and Valentines Day by as much as 50% because it seems that people now send their greeting via a text rather than sending a card.

[9] A June 2003 survey found that 94% of mobile telephone subscribers use their phones for text messaging, of which 70% send about 10 messages per day and about 14% send between 10-20 messages per day. See *Philippine Daily Inquirer*, 21 June 2003.

[10] At US 2 cents per message, this means that telcos earn, on an average, about US$5 million on simple text messaging alone each day! *Manila Times* 3 August 2006.

between US 9-15 cents per minute.[11] Secondly, Filipinos are said to be culturally sociable and are always in touch with their family members and friends. Texting has become the cheapest way to do so. Thirdly, texting is said to allow for more privacy than a phone conversation because while sending a message in a public space, the person next to you will not have to hear the "conversation" taking place on the phone. Finally, texting has been a boon to the countless overseas Filipino workers (who compose about 10% of the total population) and their families who now have an inexpensive way to keep in touch with each other without needing to pay the expensive cost of overseas calls.[12]

Thus, in a country where computer and internet penetration remains very low, text messaging is the equivalent of email and instant messaging. It has now become a vital and indispensable tool for daily communication whether for social relations, corporate or government transactions. More importantly, texting has emerged as a formidable political weapon which can be used for information dissemination, political mobilisation and alternative arena for political participation. On the downside however, it can also be used to send misinformation, disinformation, rumours and propaganda to more people, more quickly than ever before.

Text messaging and its political impact became popular worldwide as Filipinos used it to mobilise political support to rally against the President Joseph Estrada in 2001. The quick mobilisation of over a million people led to Estrada's removal from power five days after the start of the mass rallies. "People Power 2" as it is called in the Philippines is now being dubbed as the *first e-revolution*, where messages sent through mobile phones spread like wildfire due to its convenience, confidentiality, and instant connectivity, prompting people to amass to show distaste for a corrupt president.[13] Of course, as any

[11] Postpaid subscribers depending on their plan have a set number of free SMS after which they are billed US 2 cents each. The same is true for prepaid subscribers—depending on the amount of credit they load on their phone, they get a set amount of free SMS after which, they have to pay per message. Promotions recently launched for prepaid include a flat fee for two days, five days or longer and getting free SMS during the time period.

[12] For the sociocultural effect of texting, see Raul Pertierra et al., *Txt-ing Selves: Cellphones and Philippine Modernity*. Manila: De La Salle University Press, Inc., 2002.

[13] The joke is that Estrada was removed from power by coup-de-text. "Manila logging most text messages" at http://www.dailyherald.com/special/philippines/part2c.asp 17 April 2005.

observer of Philippine politics is aware, the same tool can be used for less lofty purposes—such as coup rumours and destabilisation plans—which are afflicting the current Administration.

From there on, however, various text messaging applications have been developed: texting government agencies to report crimes, polluting vehicles, or corruption; the use of SMS to book a movie ticket or an airline ticket; its use to guide rescue operations as was demonstrated in the December 2005 calamity in Leyte; in addition to sending remittance money and passing on credit from one phone subscriber to another.

No wonder the Philippines has earned the moniker "Text Capital of the World." Due to this, some analysts have pointed out that in the Asia Pacific, aside from Korea and Japan, the Philippines, despite its low income, is most ready for 3G and other broadband applications because of its population's agility and adeptness in using their mobile phones for data applications. Indeed, the majority of Filipinos do not merely see their mobile phones as telephones but more of data devices to send text messages, access information, play games, and access other entertainment services.

Thus, with the issuance of 3G licences in December 2005, the two main players have started deploying their 3G networks.[14] 3G technology promises Internet surfing on cell phones, e-mails, video conferencing, banking, shopping, TV shows, games and music – anywhere, anytime, with Internet connections estimated to be 40 times faster than current speed in wireless phones. The dominant player, PLDT, has announced that with the industry "moving past its rapid growth phase," there is a need to shift into broadband and data services.[15] Already Smart, PLDT's wireless service provider, claims to have rolled

[14] *Philippine Daily Inquirer* 29 December 2005.
[15] PLDT reports that it has 109,000 broadband subscribers along with 6,600 wireless Internet subscribers as of end of 2005. Sales growth in the telecoms market has been slowing after six years of rapid expansion, with firms focusing on cost-cutting and targeted marketing to prop up profits and attract new customers. PLDT reports broadband and wireless data that fits the DOI. See *Philippine Daily Inquirer*, 8 August 2006.

out 3G services with the speed of 114 kbps to 2 Mbps to 830 cell sites covering 142 cities and towns as of June 2006.[16]

Applying the DOI to the Philippines

Given this background and context, applying the DOI indicators to assess the Philippine's state of digital preparedness yields the following figures in Table 3.

One of the immediate issues in measuring the DOI of the Philippines is data availability. Some of the indicators are measuring services that are yet to be launched or are still too young in the context of the Philippines. For instance, data for fixed broadband and broadband mobile usage are not yet available simply because the services are not yet available or are at a very early stage of operation. In cases where they are available, use is low precisely because they have just been launched and the service cost and coverage limits uptake. (For instance, PLDT reported that the company has 58,000 wireless broadband subscribers as of June 2006, as the company has about 2,200 wireless broadband-enabled base stations providing high-speed internet access in 386 cities and municipalities.) In most cases, one has to rely on rely on analysts' estimates or old data.

Candido Astrologo of the National Statistical Coordination Board (NSCB) points out that lack of data can mean many things. Sometimes, data is available but: (1) it is not collected by the regulator or the statistical agency; (2) it is not reported by the telcos and other players; (3) the frequency of data gathering is not the desired frequency (e.g. every 5 years or irregularly as opposed to every year for a fast moving industry like ICT), (4) or that the measurement is not yet applicable to the country's context (e.g. broadband mobile internet users).[17]

A more important barrier to data and statistical availability in the Philippines is the current mess in the government's financial state. Due to a political stand-off between the executive and the legislature, Congress did not pass the 2006 Budget, which led to the re-

[16] PLDT Press Release, 8 August 2006 at http:/www.pldt.com.ph
[17] Interview with Mr. Candido Astrologo, OIC Director of the National Statistical Information Center (NSIC) and Mr. Joseph Addawe, NSCB technical staff member, Makati City, 14 August 2006.

enactment of the 2005 budget. The National Statistics Office was scheduled to undertake its population and household census in 2006. However, because the budgetary allocation was not released, the census cannot be conducted. One can only imagine the priority that will be given collecting ICT data when a census mandated by law on crucial statistics as population and households cannot be undertaken due to financial constraints and politicking!

Given these caveats, based on the three indicators of Opportunity, Infrastructure, and Usage, the Philippines scores slightly lower than the world average of 0.37 and ranks 94th worldwide.

Table 3

DOI for the PHILIPPINES	2003	2004	2005
DOI	**0.33**	**0.356**	**0.36**
Opportunity	**0.86**	**0.93**	**0.93**
Percentage of population covered by mobile cellular telephony	0.8	0.85	0.85
Internet access tariffs as a % of per capita income	0.81	0.98	0.98
Mobile cellular tariffs as % of per capita income	0.96	0.96	0.96
Infrastructure	**0.11**	**0.11**	**0.13**
Mobile cellular subscriber per 100 inhabitants	0.28	0.38	0.38
Proportion of HH with a fixed line telephone	0.14	0.15	0.15
Proportion of HHs with a computer	0.08	…	0.08
Proportion of HH with internet access at home	0.04	…	0.04
Mobile internet subscribers per 100 inhabitants	0	…	0.003
Usage	**0.03**	**0.03**	**0.03**
Internet user per 100 inhabitants	0.05	0.06	0.06
Ratio of fixed broadband internet to total internet subscribers	0.03	…	0.03
Ratio of broadband mobile subscribers to mobile internet subscribers	0.017	…	0
World Rank 2005			**94**
Basic Information			
Population	81,100,000	83,510.00	84,214,778
GNI per capita in US$	1,030	1,080	1,170
Annual exchange rates US$1=Peso	54.2	56.04	55.14

Of the 11 indicators, 8 are available while 3 are not available or not yet applicable. The three are:

- mobile internet subscribers per 100 inhabitants

- ratio of broadband internet subscribers to total internet subscribers
- ratio of broadband mobile subscribers to mobile internet subscribers

Disaggregating the country's score shows that the Philippines has a high score in all three indicators that measure Opportunity: a high percentage of population covered by mobile service and affordable mobile cellular and internet tariff as a percentage of the per capita GNI. Indeed, mobile coverage is now present in mountainous villages such as Sagada, seven hours by road from Baguio City in Northern Philippines as well as far flung islands in the South such as the disputed Spratlys Islands. The Internet tariff is as low as US$2 for 20 hours[18] and cellular tariffs are affordable: 2 cents for SMS, 9-15 cents for a minute of voice call, and 40 cents for a minute of IDD call. These three indicators support the fact that liberalisation and tough competition in the industry has brought about better services and lower prices. The Opportunity indicator is basically driven by the explosion in mobile phone ownership that has been observed earlier.

However, in terms of the second main indicator, Infrastructure, the Philippines scores very low, except in mobile teledensity. Fixed line ownership per household is low despite the presence of available lines. This is partly because of the shift to mobile use which has the advantages of mobility, instantaneous connection, and social status of owning a mobile phone. However, as shown in Table 1, there are more fixed lines than subscribers willing to subscribe to them. This situation has led some fixed line providers to offer prepaid fixed line services. Despite this, many people are not subscribing.

Household ownership of personal computers is also low, again due to cost and ability to own given per capita incomes. Thus, it is not surprising that the next indicator, the proportion of households with internet access is also very low, given the low fixed line and computer ownership. In a country where internet access is still through dial up, accessing the internet is perhaps best measured through public access points (PCOs, telecenters, and internet cafes) and not via households.

[18] This tariff is for prepaid dial-up internet of up to 56 kbps speed. Post paid plans are probably cheaper, depending on the bundle.

The DOI measures Infrastructure availability through personal (mobile phone) or household ownership (fix line and PC), which are preconditions to household internet subscription (whether mobile or fixed internet access). Yet in developing country situation like the Philippines, where personal or household ownership of ICT infrastructure indicators (fixed phone, pc, and fixed or mobile internet access) is low, there is need to supplement the measure of infrastructure with public access points. The main challenge, of course, is data availability. The NTC and the NSO do not have a complete list of internet cafes and PCOs operating nationwide.[19]

As regards Usage, the third component of the DOI, the Philippines again registers a very low score. Due to the lack of updated information, the number of internet users per 100 inhabitants is estimated by the ITU's TMG from a 2003 survey. However, a 2003 NSO Functional Literacy, Education and Mass Media Survey (FLEMMS) found that 20% of the country's population aged 6 years old and over (about 13.8 million Filipinos) use the internet as a source of knowledge and information, with 7.4% of the said users accessing information from the internet everyday. This survey translates to a bigger number of individuals that used the internet than the statistics cited in the DOI calculation (16 % as opposed to 6%), and this survey statistic is three years old! Given the boom in internet cafes and the increasing number of telecenters, I suspect that the statistics do not really capture the real picture. However, the lack of data on the number of internet cafes and telecenters hampers a more reasonable calculation.

It has to be pointed out however that in measuring internet usage, it is commendable that the DOI indicator being used is internet **user** as opposed to **subscriber.** This is so because the category user is more inclusive than a subscriber, and it does not imply or assume personal or household ownership of a pc and a phone.

The high mobile subscription per 100 people thus far has not translated to more people using their mobile phones for the internet due to the high cost of use and availability of

[19] The Telecommunications Office (Telof) estimates that there are between 150-500 PCOs nationwide that government owns and operates.

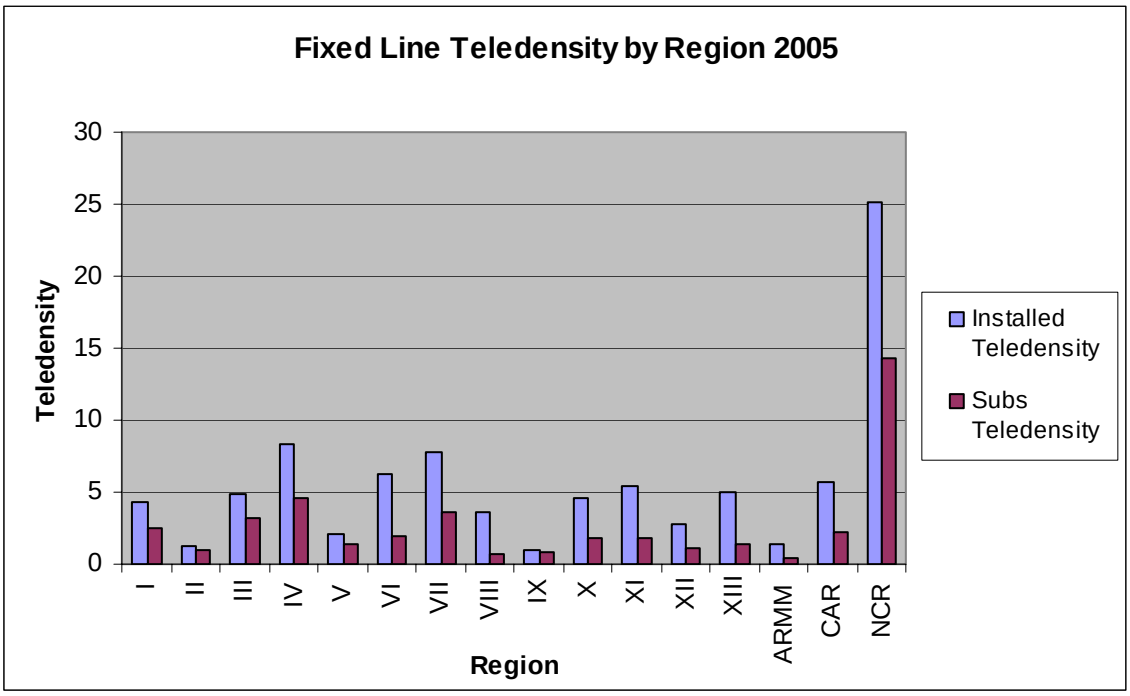
internet capable handsets.[20] However, as detailed in the first section of this paper, SMS use is very high. Is there a possibility then to measure data use and value added service or application use of the mobile phone that is beyond voice calls?

To sum up, the Philippine's DOI is driven by high Opportunity but brought down by low Infrastructure and Usage. These scores point to the fact that policies should be targeted towards catalysing use of ICT as well as providing incentives for the roll-out of infrastructure. However, there are also areas that the DOI misses, which will be the focus of the next section of this paper.

Supplementing the DOI and Data Problems in the Philippines

The DOI's use of household data in measuring the availability of Infrastructure, while an improvement over the old measures that use individual access as a category, still do not fully capture the spatial character of the digital divide as well as the importance of public access points in developing countries.

Figure 2



[20] Michael Minges, in a presentation, estimates that 15-30% of handsets in the Philippines are 3G capable. See "The Internet on a Mobile Phone," Digital Bridges Symposium, 11 September 2004, Busan Korea. http:…

In the case of the Philippines, where the urban and rural divide in terms of economic development and availability of resources (including fixed and mobile phone coverage, internet access, and availability of broadband services) is very large, measuring access at the average level per household will not provide a very accurate picture. To cite an example, Table 4 shows that as of 2000, about 72% of fixed lines in the country are concentrated in urban areas. Figure 2 provides a picture of this geographical disparity. While similar data are not readily available for mobile coverage, the distribution is probably on the same scale—i.e. that mobile coverage is centred on the more populous and high income areas. This point shows that urban and rural as well as regional disparities are not captured when using household as the category level.

In the same manner, using household level data also misses out on the important role of public access points for communication needs in a developing country. Broadband fixed and mobile internet measured at the household level does not make much sense in a situation where these services are not yet available. On the other hand, an alternative, perhaps more realistic measure of internet usage would be a survey of internet cafes and Public Calling Office (PCO) users. In the Philippines, as of 2005, there were about 375 registered value added service providers. This number does not include local government initiatives, public calling offices owned by private businesses including telcos, as well as those funded and run by aid agencies or NGOs. As of 2000, PCO coverage was 88 percent of the total cities and municipalities. Unfortunately, there is no updated data on this, but it is perhaps accurate to estimate that this coverage has improved given focus by donor and aid community on telecenters, corporate social responsibility efforts by big business in setting up ICT centers, and local government putting in efforts in establishing or running telecenters. Similarly, as has already been mentioned, it is unfortunate that there is no government statistics available on the number of internet cafes, which has emerges as the main access point for internet use.[21]

[21] Since registration with the NTC is not required for an internet café to start operations, the only way to collate the statistics is to gather all registered internet café businesses with the Department of Trade and Industries and the list of registered internet café businesses in all the 1609 towns, cities, and municipalities nationwide.

Table 4
Concentration of Telephone Facilities in Urban Centres, 2001

Area	Installed Lines	% of Total Installed Capacity
(1) Metro Manila	3,248,046	47.03
(2) Cebu, Mandaue and Lapu-Lapu City	322,951	4.68
(3) Bacoor and Kawit Cavite	113,846	1.65
(4) Davao City	85,757	1.24
(5) Baguio City	75,406	1.09
(6) Angeles City	71,116	1.03
(7) Bacolod City	66,609	0.96
(8) Malolos, Bulacan	60,218	0.87
(9) Biñan, Laguna	58,224	0.84
(10) Iloilo City	54,949	0.80
(11) Antipolo City	51,398	0.74
(12) Gen Santos, South Cotabato	49,348	0.71
(13) Batangas City	47,132	0.68
(14) Cabanatuan City	46,760	0.68
(15) Cainta, Rizal	45,702	0.66
(16) Imus, Cavite	40,693	0.59
(17) Lipa City	39,148	0.57
(18) Dagupan City	38,900	0.56
(19) Iligan City	37,480	0.54
(20) Naga City	37,100	0.54
(21) Taytay, Rizal	36,608	0.53
(22) Koronadal, South Cotabato	34,014	0.49
(23) Tacloban City	30,794	0.45
(24) Tarlac	30,612	0.44
(25) Vigan	26,474	0.38
(26) Meycauayan, Bulacan	22,340	0.32
(27) Calamba	22,182	0.32
(28) Tagbilaran City	21,234	0.31
(29) San Fernando, La Union	20,776	0.30
(30) Laoag City	18,020	0.26
(31) Binangonan, Rizal	17,680	0.26
(32) Zamboanga City	17,642	0.26
(33) Baliuag, Bulacan	16,750	0.24
(34) Legaspi City	16,088	0.23
(35) Angono, Rizal	15,796	0.23
(36)Mabalacat, Pampanga	11,000	0.16
TOTAL	4,950,791	71.64%

Source: *Assessment of the SAS*, p. 11.

Secondly, with its emphasis on broadband and mobile internet usage, the index misses out on measuring current 2G data applications which, in the case of the Philippines, have developed countless political, social, and economic functions. In fact, despite press releases of telcos that the future is in broadband wireless and data application, 2G services continue to be profitable and there are still products and services that can be developed using existing technology, which is probably a reason for the slow deployment

of 3G services. Given the preference for broadband technologies, 2G applications and use of the mobile phones as detailed in section 2 are not captured by the DOI.

Table 5

Coverage of Telecommunications Services
As of December 2000

Total Cities and Towns in the Philippines (1,609)	Total Number	% of total cities and Municipalities
With Local Exchange Service/fixed line service	844	52.4%
With cellular service	654	40.6%
With Payphone/PCO service	1417	88.1%
With fixed lines/ Payphone/PCO	1481	92%
With fixed lines/cellular/ Payphone/PCO	1495	92.9%

Source: *Assessment of the SAS*, Appendix A, p. 32.

Further comments on the DOI

- The DOI seems to privilege mobile broadband technologies which are still not available in developing countries. Would implementing a benchmark that countries still don't have unwittingly create another digital divide in the process?
- Why is fixed line cost not calculated as part of the Opportunity segment for the DOI given that it is part of the Infrastructure measure? What if strategies are hybrid and people decide to use mobile for voice/text and fixed line for internet? How does the DOI capture this?
- There are huge barriers to shifting to accessing internet with broadband mobile – cost of handset, cost of download, though the cost of internet access via mobile might be cheaper given lower infrastructure cost.

Conclusion

The DOI seems to have a bias towards broadband and wireless technologies that are not yet available in developing countries. Some of the indicators are also not available because they are just being deployed. Thus, this raises the question, is it relevant to

measure a country's performance in something that it does not yet have? Wouldn't doing so privilege those who already have and therefore further exacerbate the digital divide?

At a deeper level, the DOI assumes that technology will always be used in the same way in different contexts. However, we must remember that it is social contexts that shape what technologies people accept and how they use them. The use of a particular technology can be path-dependent, shaping further choices with regard to what technologies are accepted further down the line. Until 3G technology produces an equally low-cost, flexible, and versatile means of communication such as the SMS, it is likely that Filipinos will be texting for years to come, creating demand for services based on this technological paradigm - regardless of whether video-streaming or holographic messages are available.

Furthermore, while using household-level data is a step towards a more versatile and context-sensitive measure, it must also be accompanied by other indicators. Just as households range from nuclear to very extended families across countries and cultures – so too do the uses of the same technology vary in different contexts. While mobile phones are an individual accessory in Manhattan, the same telephone is used by an entire village in Bangladesh. Different internet subscriptions for each member of the family in Detroit are different from a communally-used cybercafé in La Habana – yet they are based on the same technology.

Despite these observations, the DOI is an important tool in measuring and generating comparative data that tracks and benchmarks the progress made toward building an information society. However, the DOI analysis must be complemented with local government level or regional level data as well public access points, not merely household level data.