

The innovative use of mobile applications in the Philippines – lessons for Africa

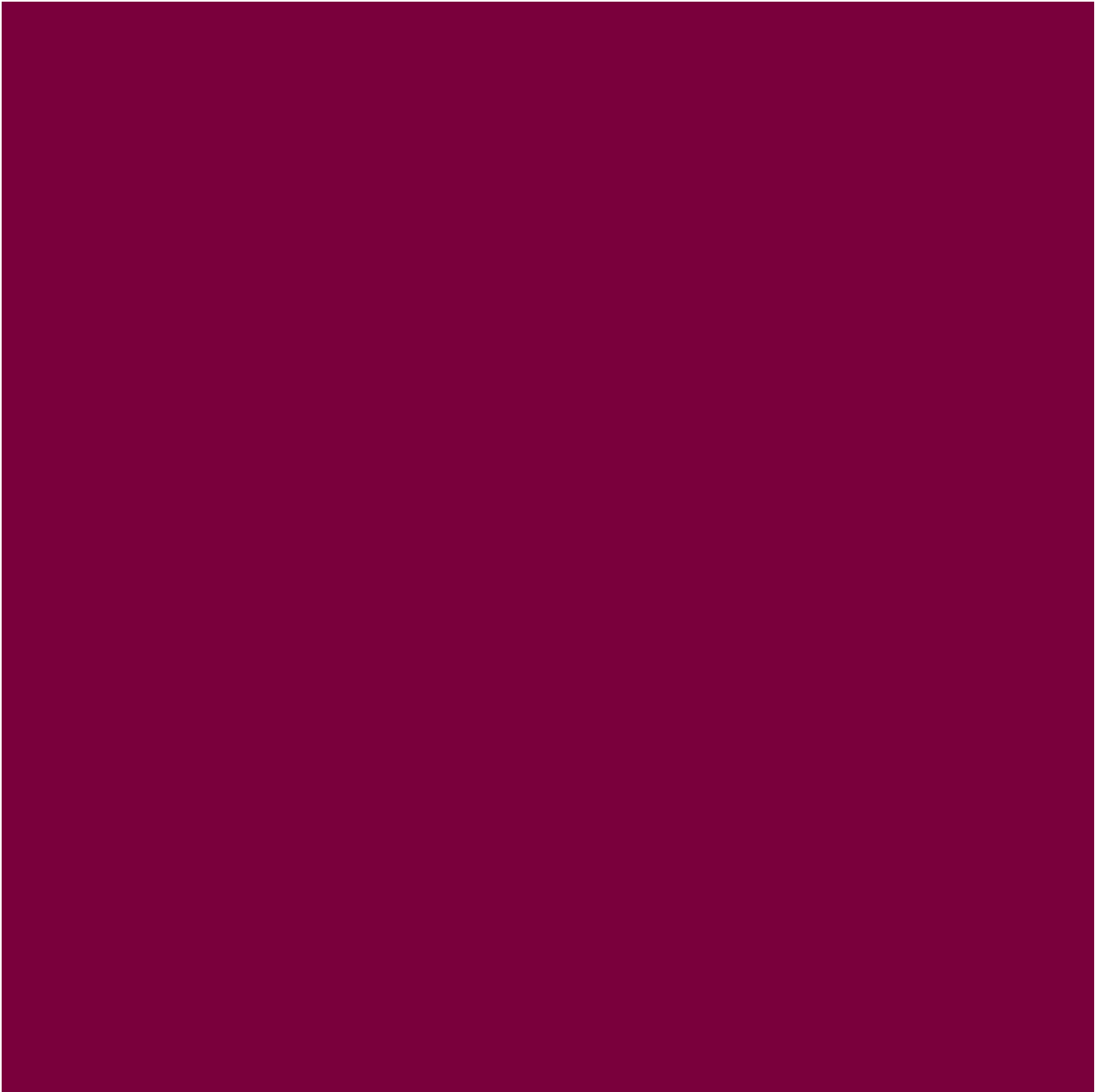


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Authors: Shawn Mendes, Erwin Alampay, Edwin Soriano and Cheryll Soriano.
Contact: shawn_mendes@hotmail.com

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1. Introduction

In India, fishermen call ahead to ports to see where they will get the best deal on their catch. Kenyan farmers check crop prices on a mobile service. In South Africa, cell phones serve as a virtual office for carpenters, painters and other labourers who post their numbers on handwritten signs advertising their skills. But it is the Philippines that has become a global leader in mobile commerce (Globe and Mail, 2007).

In recent years there has been a growing realization of the critical role information and communication technology (ICT) plays in development. The Swedish International Development Cooperation Agency (Sida) supports the integration of ICT in developing countries in order to improve communications, the exchange of information and to facilitate economic development.

Much of the focus of the role of ICT in development was traditionally on increasing access of people in developing countries to computers and to fixed-line telephones, often through regional tele- and IT-centres. However, these efforts have almost been virtually overrun by the explosive growth of mobile telephony in many developing countries. Indeed, mobile phones are now the primary form of telecommunication in developing countries and they play the same role fixed-line phone networks did in facilitating growth in Europe and North America in the 20th century.

In developing countries a generation of people have grown up without computers and their creative energies have instead been focused on using mobile phones for communications, information and, more recently, access to a range of services from m-Banking to m-Education and m-Governance. The transformation of society by mobile telephony, and especially mobile applications, is perhaps most profound in the Philippines, which is why Sida decided to dig deeper into the Philippine experience and attempt to identify best practices and lessons learned.

Background

Access to financial and other services in many developing countries is limited, especially in rural and remote areas. Consequently, many do not have access to banking services and are forced to make all payments in cash, which is less secure and flexible than electronic payment forms. The Consultative Group to Assist the Poor (CGAP) estimates that almost three billion poor people lack access to the basic financial services essential for them to manage their lives. However, in the Philippines

millions of people are now able to conduct basic banking tasks (e.g. funds transfers between individuals, small purchases, payment of certain fees, etc.) via mobile networks (InfoDev, 2006a).

The fact that so many people in developing countries lack access to financial and other services, coupled with the dramatic growth of mobile phone access through most of the developing world, provides an opportunity to reach hundreds of millions of people currently outside the banking system. The costs of mobile telephony have dropped steadily, coverage has expanded and mobile phone subscriptions in developing countries have increased by over 500 per cent since 2000 (Wireless Intelligence, 2007).

In the GSM Association's (GSMA) recent report on achieving universal access, it was found that mobile networks covered 80 per cent of the world population at the end of 2006, up from 40 per cent in 2000. This is mainly due to investments, which both respond to and drive consumer demand and typically generate profits, by mobile operators and the liberalization of telecom markets by governments. By 2010, 90 per cent of the world will be covered by mobile networks and the Association projects that mobile communication will deliver voice, data and internet services to more than 5 billion people by 2015 – double the number connected today (GSMA, 2007).

The number of mobile phone subscribers will rise to four billion by 2010, thanks partly to the development of ultra-low-cost handsets to meet the demand from new subscribers in developing countries (PC World, 2007). The ultra-low-cost initiative started in 2005 as a way to connect people to existing networks. The GSMA launched the initiative after analyzing the extent of network coverage and determining that over a billion more people would use mobile networks if they could afford handsets. To support this, the GSMA challenged handset makers to design a phone in 2005 that would cost under US\$30. This challenge was met and the GSMA has recently launched a new contest, to half the price of mobile handsets again – to US\$15 – by 2008. Another factor driving mobile phone prices down is the market for used phones market in developing countries. In particular, older models exchanged for new ones with contract renewals in both developed and developing countries find their way to markets in the developing world at relatively low prices.

The availability of even cheaper handsets will likely fuel mobile expansion among even poorer groups. This may, in turn, generate economic growth according to recent analyses, which find that increased access to mobile phones drives economic growth in developing countries. Research in China, India and the Philippines by McKinsey & Co. found that raising wireless penetration by 10 per cent can lead to an increase in gross domestic product of about 0.5 per cent. "There's enormous entrepreneurship and creativity worldwide, and through mobile phones you're providing people with the tools — rather than aid — to earn a living," says Professor Leonard Waverman whose study of 92 countries had findings similar to McKinsey's report. (*Globe and Mail*, 2007).

The potential of m-Commerce

The explosive growth of mobile phones offers an opportunity to extend banking and other services to millions of "unbanked" and un-served. By the end of 2007, 60 per cent of the world's three billion mobile users will live in developing countries and hundreds of millions of them will not have access to banking and other services. Conducting transactions with a mobile phone is often much cheaper than processing the same transaction at a bank, if a bank is even available. A recent report commissioned by the Information for Development Program (infoDev) finds that the use of mobile communications in developing countries has the potential to bring a range of financial services to previously excluded groups. The

report examines the use of mobiles for payments in the Philippines, known for its intensive and widespread use of SMS¹, and concludes that mobile-enabled financial services, or m-Banking, can address a major service gap in developing countries that is critical to social and economic development (InfoDev, 2006a). The experience in the Philippines demonstrates that m-Banking brings advantages to all stakeholders:

- *For users*: an opportunity to become engaged in the formal banking sector, facilitate and reduce the costs of remittances, and enable financial transactions without the costs and risks associated with the use of cash, including theft and travel to pay in person;
- *For operators*: an increase in SMS revenues and a drop in customer churn;
- *For consumers*: m-commerce is more secure and flexible than cash, allowing consumers to make payments remotely;
- *For banks*: an increase in customer reach and added cash float;
- *For retailers*: added business opportunities through the sale of prepaid account credits;
- *For micro-finance institutions*: the ability to advance funds into remote areas and have regular repayments that do not inconvenience the user; and
- *For service industries and utilities*: the ability to get payments electronically from a significant portion of the population (InfoDev, 2006a).

Given the experience the Philippines has had extending, via mobile telephony, financial and other services to people traditionally excluded, there is a need to identify the underlining factors behind, and current reality of, *m-Banking* and similar services in the country. This experience and some lessons learned from it are detailed on the pages following.

¹ Short Message Service permits the sending of messages between mobile phones and/or other devices. The term text messaging is common in English-speaking countries and the Philippines, while most other countries use the term SMS. SMS can also be used to interact with automated systems to order products and services, participate in contests, access information and/or conduct financial transactions.

2. m-Commerce in the Philippines

The Philippines is celebrated the world over for its leading role in the use of SMS. It is informally considered as the ‘texting’ capital of the world, known for deposing a president using SMS, and is ranked as the most SMS-intensive country in the world² (Wireless Intelligence, 2007).

The use of SMS as a means of conducting m-Commerce also originated in the Philippines, starting with the innovation of passing top off credits among subscribers in exchange for services (Lallana, 2004) and the development of ‘mobile currencies’ like G-Cash and Smart Money that are now used for more formal financial services, among them micro-finance (Soriano & Barbin, 2007; Wishart, 2006). Given this, there is growing interest in understanding how this phenomenon emerged (Lallana, 2003; Pertierra, 2002; Soriano & Barbin, 2007; Umali, 2007; Wishart, 2006; Proenza, 2007) and interest in identifying best practices and lessons that other countries can build upon.

To understand the success of mobile applications such as m-Banking in the Philippines requires understanding the context of the entire telecommunications industry and the policies that surround it. It also requires understanding the role of technology in making this possible. As such, this report will:

1. Discuss relevant telecommunications policies in the Philippines that contributed to access to information and communication technologies since the 1990s, especially the rapid growth in mobile phone access, and the factors that helped its expansion to the poor;
2. Discuss the various mobile applications that have been developed in recent years in the Philippines;
3. Analyze SMS-related development applications, with special emphasis on m-commerce; and
4. Analyze the implications of these developments in other situations and contexts, such as in Africa.

History of ICTs in the Philippines

The following section explores how the dramatic increase in access to information and communication technologies in the Philippines has been

² In the fourth quarter of 2006, available Wireless Intelligence data showed that SMS per user in the Philippines is more than double that in the next most SMS-intensive country. Further, just one leading Philippine operator, Smart, with over 51 billion SMS in the fourth quarter of 2006 – 500 million SMS per day – registered more SMS in the quarter than global giants China Unicom, Verizon Wireless and Cingular Wireless combined (Wireless Intelligence, 2007).

influenced by government policies, corporate strategies and changes in technologies. Government policies include the establishment of its own network of public calling offices, and most importantly, the opening of the market for more telecommunication providers. The opening of the market, in turn, led to greater competition, which also spurred greater innovations as far as strategies for expanding the market, and variety in services offered. Furthermore, many of these strategies would not have been possible had the technology not been present to allow the rapid rollout of wireless services, thereby making the local telecommunications market truly competitive. In a way, these three factors converging at the right moment in time was crucial to the growth of access in the Philippines (Alampay et.al., 2003).

The following section elaborates on the policies connected with universal access and e-commerce in the Philippines. It then discusses the crucial innovations and technologies the market embraced that helped spur the expansion.

Policy

The 1987 Philippine Constitution recognizes “the vital role of communications and information in nation-building” (Art. II, Sec. 24). This role can be best contextualized by considering how the country is composed of over 7,000 islands, millions of overseas Filipino workers and one of the world’s major players in the call centre/business process outsourcing industry. Information and communication technologies (ICTs), as such, play a crucial role in linking Filipinos across the archipelago, linking their families around the world, and providing crucial support services to companies from different nations.

Unlike many countries in the world, telecommunications services in the Philippines had historically been provided by a private monopoly until the early 1990s, the Philippine Long Distance Telephone Company (PLDT). This was also complemented by a government backbone that provided limited services to underserved regions in the country.

In 1990, the government’s National Telecommunications Development Plan (1990–2010) sought to divest the state of its role in the delivery of telecommunications services through privatization and more competition. At the same time, the plan was for government to continue facilitating official development assistance (ODA) for telecom projects in underserved and economically unviable areas (Abrenica, 2000:150).

Although efforts to liberalize and reform the sector began in the 1980s, only with the issuance of Executive Orders (EO) 59 and 109 did real competition emerge. EO 59 required mandatory interconnection among telecommunication providers, while EO 109 introduced service obligations among international gateway (IGF) and cellular mobile telephone service (CMTS) providers through the “service area scheme” (SAS). Service obligations were specific to putting up 300,000 to 400,000 telephone landlines at a ratio of one line in a rural area for every ten in an urban area (Alampay, 2006). Because of these service obligations, some consider the Philippines telecommunications market as only ‘semi-open’ (Oliva, 2003). Table 1, below, provides an overview of key ICT laws, plans and policies in the Philippines between 1979 and 2005.

Table 1: Philippines Laws, Plans and Policies with implications to ICT Access and E-Commerce (1979–2005)

Policy	Year	Objective/Goal
Executive Order 546	1979	Gave the NTC the power to effectively diffuse telecommunication facilities in the country, by maintaining effective competition among private entities whenever it found it reasonably feasible.
National Telecommunications Development Plan (1982–1987)	1982	To establish a high-capacity, standardized trunk transmission network that covered the whole country, and provide highly reliable telecommunications services. To build an alternate transmission backbone through the Regional Telecommunications Development Project (RTDP) and the National Telephone Program (NTP).
Philippine Constitution of 1987	1987	Directed the state to “provide the policy environment for the full development of Filipino capability and the emergence of communication structures suitable to the needs and aspirations of the nation and the balanced flow of information into, out of, and across the country...” (GoP 1987, Art. XVI, Sec. 10).
DOTC Circular 87–188	1987	Its objective was to create an integrated national telecommunications network, under a competitive but regulated market environment (Abrenica 2000:150).
RA 6849- The Municipal Telephone Act	1989	Created the Municipal Telephone Project Office (MTPO) under the DOTC. Mandated the MTPO to develop, in coordination with other concerned agencies, a plan for providing calling stations with technology capable of voice and data transmission in every municipality, and where feasible, in such barangays not otherwise served by existing telephone exchanges using appropriate technology.
National Telecommunications Development Plan (NTDP) (1990–2010)	1990	Set out the department's overall policies for the communications sector and established a comprehensive set of service-oriented targets through the year 2010. The plan had an aggressive privatization stance and affirmed the government's intention to establish an open and liberalized market environment.
Executive Order 59	1993	Required the “compulsory interconnection between NTC authorized public telecommunication carriers” (GoP 1993).
Executive Order 109	1993	Introduced service obligation in the form of local exchange carrier (LEC) services. It required cellular mobile telephone service (CMTS) operators to install 400,000 landlines in five years upon implementation of the law. It also required international gateway facility operators (IGF) to put up 300,000 landlines in 3 years.
Policy	Year	Objective/Goal
RA 7925 – Public Telecommunications Policy Act	1995	Defined the areas that concern public authority and market principles related to telecoms service. Mandated the privatization of existing facilities and took into account the ownership structure of the telecom entities in order to encourage efficiency and public accountability.
IT 21	1997	Defined the broad principles and strategies mentioned in the previous National Information Technology Plan into more specific programs and activities, and delineated the roles of the government and the private sector in this endeavour.
Administrative Order 232	1997	Instructs all government agencies and instrumentalities including local government units to undertake electronic interconnection through the internet.

Policy	Year	Objective/Goal
Executive Order 35	1998	Directed the National Computer Centre to design and build an integrated government information infrastructure.
Executive Order 264	2000	Merged the National Information Technology Council and the Electronic Commerce Promotion Council to create the Information Technology and Electronic Commerce Council in 2000.
Alternative Communications Program	2000	Established a telecentre and payphone program. These strategies were referred to as the Telepono sa Barangay and the Community E-Centre Program.
RA 8792 E-Commerce Act	2000	Laid the legal and regulatory framework for e-commerce, touching also on electronic banking.
General Banking Act	2000	Provides the framework for regulating electronic banking.
MTPDP (2001–2004)	2001	The government intends to maximize the benefits of ICTs for the country's development.
ICT Strategic Roadmap	2003/ 2006	Outlining strategic directions and identified specific projects to push information infrastructure development, electronic governance, e-business development, and human capital development in the country.
Executive Order 269	2004	Creation of the Commission on Information and Communication Technology.
Memorandum on VoIP	2005	NTC memorandum for Voice over Internet Protocol (VoIP) defines it as a value-added service, and can then be offered by non-public telecommunication enterprises.

In 1995, the “Public Telecommunications Policy Act of the Philippines” or RA 7925, was passed. It reiterated the policy of competition and the promotion of universal telecommunication service in the country. Article II, Section B restated the universal access objective by saying that “the expansion of the telecommunications network shall give priority to improving and expanding basic services to areas not yet served... to stimulate the growth and development of the telecommunications services, with emphasis on the accessibility by persons to basic services in unserved and underserved areas at affordable rates” (Philippine Congress, 1995). The Act also mentioned that only telecommunication entities, which by law had to obtain a legislative franchise, were allowed to offer ‘telecommunication services.’ The context of what telecommunication services then meant became a contentious issue later on, when new technologies that could deliver the same service were developed (e.g, Voice over Internet Protocol).

The concept of the Internet entered policy discussions in 1997 with the issuance of Administrative Order 232 introducing the “RPWEB,” which essentially meant the electronic interconnection of all government agencies nationwide via the Internet. The succeeding year, EO 35 directed the National Computer Center to design and build an integrated government information infrastructure. By 2000, EO 264 merged the National Information Technology Council (NITC) and the Electronic Commerce Promotion Council (ECPC) to create the Information Technology and Electronic Commerce Council (ITECC). The rationale for doing this was the growing understanding about the convergence of ICTs and the need to take advantage of opportunities presented in the information economy.

In 2000, RA 8792 (the e-Commerce Act) was passed. While previous policies dealt primarily with infrastructure, government was beginning to recognize that policies have to be in place to regulate how people use these new platforms and the applications that will drive the information superhighway. This Act laid the legal and regulatory framework for e-commerce. However, since e-commerce also includes electronic banking, applications and services pertaining to electronic banking had to be cognizant of banking related policies. In this regard, the General Banking Act of 2000 laid the framework for regulating electronic banking.

The Medium Term Philippine Development Plan (MTPDP 2001–2004) reflects the changes in universal access targets since the early 1990s. It mentions new indicators of access to ICTs, such as the provision of high-speed, broadband transmission services in all cities; the installation of telecentres in all municipalities; availability of cellular mobile telephone service to all major highways and corridors connecting provincial capitals and cities; and the provision of public telephone service in all *barangays*.

The country's highest policy-making body for ICT, the ITECC (now CICT)³, launched the ICT Strategic Roadmap in 2003. It outlined the strategic directions and identified critical projects needed to push information infrastructure development, electronic governance, e-business development, and human capital development in the country. The Roadmap was updated with the issuance of the Philippine ICT Roadmap 2006–2010, which re-emphasized as its guiding principle, that all citizens must have basic access to government services, information, and quality education through appropriate and affordable ICTs, with a specific focus on Internet-based applications. While the current Roadmap notes the outstanding increase in mobile telephone subscription over the years, it does not identify particular directions nor projects to support the utilization of mobile technologies for delivering government services, or spurring mobile commerce.

The NTC made a landmark decision declaring Voice over Internet Protocol (VoIP) as a value-added service in 2005. The decision clarified questions regarding the 'telecommunication services' that were the strict domain of public telecommunication entities (PTEs), who were in turn required to have legislative franchises and render service obligations (NTC, 2005). With VoIP defined as a value-added service, it added another dimension to competition in the market for delivering voice services.

The liberalization of the Philippines telecommunications industry to competition is a critical tipping point in increasing access to voice services. However, it should be qualified that real competition occurred with the emergence of more affordable cellular/mobile services, and not so much due to the competition provided by other landline providers.

The following section explores current indicators of ICT access in the Philippines to illustrate not only the growth in overall access to all types of ICTs, but also how spectacular the increase in cellular phone penetration has been in comparison to telephones and broadband internet.

Growth in ICT access

The number of landlines and subscribers grew significantly between 1992 and 2002, from 744,000 lines to 6.9 million. Landline subscriptions

³ By virtue of E.O 269 (s. 2004), the ITECC has been renamed as the Commission on Information and Communications Technology, merging the National Computer Center, the Telecommunications Office, and the Communications segment of the Department of Transportation and Communications.

also grew in that span from 0.66 million to 3.3 million. From a landline telephone density of less than one (0.9) per 100 in 1990, it peaked at 9.1 per 100 in 1999 but then fell to 7.8 per 100 in 2005. This implies that population growth outstripped the pace of phone line installation during the period (Refer to Table 2). This has also been exacerbated by the fact that the actual number of landline phones installed has declined while the growth in subscribers has been flat from 2001–2005. This is partly a consequence of the strategy of some companies to invest more in wireless services (PLDT, 2002).

It is important to note that higher teledensity does not automatically mean access has improved in un-served and underserved areas because installed landline capacity is still concentrated in urban centres. For instance, in 2002, the national capital region (NCR) had 41% of all installed telephone landlines and 51% of all subscribers but only 14% of the population (NTC, 2003), which clearly shows how services tend to be skewed towards urban regions.

Table 2: Philippine landline telephone density (1990–2005)

Year	Landlines (millions)	Subscribers (millions)	Population* (millions)	Teledensity†
1990	~	~	60.7	0.91
1992	0.74	0.66	~	1.17
1993	~	0.86	~	1.21
1994	~	1.11	~	1.67
1995	1.41	1.41	68.6	2.01
1996	3.35	1.79	~	4.66
1997	5.77	2.08	~	8.07
1998	6.64	2.51	73.1	9.08
1999	6.81	2.89	74.7	9.12
2000	6.90	3.06	76.3	9.05
2001	6.92	3.31	77.9	8.88
2002#	6.91	3.31	79.5	8.70
2005**	6.54	3.37	84.2	7.76

*NSCB Statistical Yearbook. †Infocomms report (lines per 100 people). # NTC Annul Report 2002. **NTC 2006

Teledensity data, however, is somewhat misleading because the number of available lines could increase even though the number of people using or subscribing to them does not grow. In fact, less than half of the 6.9 million landlines available in 2002 were subscribed. This implies that phones may not have been placed in areas where people could access them; or were placed in areas where there was already an over supply (i. e. the national capital region); or they may not have as much use or demand for them as previously thought (Minges et.al., 2002).

Public access: PCO service/telecentres and payphones

There are two primary kinds of public access to phones: public calling offices (PCO) and payphones. The difference between a public calling office and a payphone is that in a public calling office there are operators who can help clients with their calls and receive incoming calls. However, they are not open throughout the day and incur additional operational costs for the office space and labour. A public payphone, on the

other hand, can be used independently anytime of the day, but has no operator to assist customers and cannot ordinarily receive incoming calls. Thus, when deciding the preferred model for providing public access, whether a public calling office or a payphone, it is important to consider the advantages and disadvantages that each option provides. This is in contrast to much of Africa where stand-alone payphone are very rare, and public access is often gained through entrepreneurs selling wireless time on their mobile phones.

According to Engr. Nestor Ancheta of TELOF⁴, as of 2001, 88 per cent of all cities and municipalities had public calling offices or payphones, with TELOF providing services to 48 per cent of them. The municipalities that TELOF serviced were often in municipalities that the private sector did not operate in. By the end of 2002, 1433 municipalities (96 per cent of all municipalities) had existing public calling offices (NTC, 2003). Hence, the government's target of having public calling offices in every municipality was close to being achieved.

However, as with local exchange services, public calling offices also tend to be located in the developed centres of every municipality (Bongato 2002). This means that considering the size of some cities and municipalities, the difficult terrain and poor road infrastructure in some areas, having a public calling offices in a municipality does mean everyone having access to them. In Puerto Princesa City, for instance, some rural barangays are 60 kilometres away from the main town centre. If public facilities are limited to urbanized areas, it could take a person two hours by land transportation to reach a useful public phone because of distance and poor roads.

With respect to pay phones, the number rose from 4809 in 1990 (Minges, 2002) to 15,200 by 2002 (ITU, 2003), still very low in proportion to the population. It means that there were only 0.075 payphones per 1000 inhabitants in the Philippines in 1990⁵ compared with 0.19 per 1000 in 2002 (ITU, 2003). The DOTC, however, estimates that available landline telephones for public use are actually higher than officially reported because of the practice of enterprising private individuals and private businesses making their phones available for public use for a fixed fee (DOTC, 2000a). Nonetheless, even considering this kind of public phone, the actual payphone penetration is still far below the ideal target of 2 payphones per 1000 recommended by the ITU.

Lastly, telecentres, like payphones and public calling offices, were also set up to provide community-based communications services. Moreover, telecentres were established to provide not only voice, but also a variety of data services such as fax and Internet access. According to the National Computer Center – Field Operations Office (NCC-FOO), there are now about 737 community e-centers established by government and the private sector in various locations such as local government offices, community centers, and schools.

Cellular/mobile coverage

PLDT introduced the first cellular mobile phone service, PILTEL in 1991 (Lallana, 2004). The current leading providers, Smart and GLOBE, entered the market in 1994. In 2003, a third provider, Sun

⁴ Interview with Engr. Nestor Ancheta of TELOF

⁵ In DOTC's benchmark study in 1998, it reported that there were 0.26 payphones per 1,000 people in 1998, with the highest concentration located in Metro Manila. This figure was not consistent with the data from the ITU (DOTC, 2000). Unfortunately, DOTC does not provide the data on payphones regularly, and measuring progress from their report is more difficult to evaluate. Hence, the ITU data were used instead.

Cellular entered the market, offering lower priced unlimited SMS and voice service. By 2005, it already had 1.8 million subscribers, or roughly 5 per cent of the market and was growing (NTC, 2007).

As with much of the world, and especially among developing countries, mobile/cell phones in the Philippines already outnumber landlines. In fact, while installed landline capacity declined by 3.7 per cent from 1999 to 2003, the same period saw cellular subscriptions increase eight-fold (Umali, 2007). By the end of 2005, the National Telecommunications Commission reported that CMTS density had reached 41 per cent (NTC, 2007). They are the most accessible form of ICT in the country after radios and television. In fact, the mobile network coverage of major providers now reach 99 per cent of the country's 81.6 million people, resulting in a market penetration rate of 60 per cent and household penetration rate of almost 80 per cent.

National statistics indicate that cellular teledensity is more than five times the measured teledensity for landline services (41 cell phone subscribers/100 people vs. 7.76 landline telephones/100 people) (NTC, 2007). In comparison with landline teledensity, this is significant considering that cellular density is measured by the number of subscribers and not just the number of lines available. In fact, by the end of 2005, there were already close to 35 million cellular phone subscribers, up from only 56,044 subscribers in 1992 (Refer to Table 3). The data show that every second Filipino had a mobile phone by the end of March, 2007.

Table 3: Cell/mobile phone subscriptions (1992–2005)

Year	Cellular Subscribers (millions)
1992	0.06
1993	0.10
1994	0.17
1995	0.49
1996	0.96
1997	1.34
1998	1.73
1999	2.85
2000	6.45
2001	12.16
2002	15.38
2003	22.51
2004	32.93
2005	34.78

Source: National Telecommunications Commission Annual Report 2005 (NTC, 2006), although cellular subscribers may be slightly overstated since one person may own one or more SIM.

Philippines cellular/mobile coverage in a regional perspective

Similar to most developing countries in Asia and around the world, the Philippines has experienced very rapid growth in mobile penetration. What distinguishes the Philippines from other countries is both the intensity of SMS use and the subsequent development of simple mobile-based applications such as m-Banking. In Table 4, below, mobile market penetration in the Philippines is compared to various other Asian countries.

Table 4. Market Penetration in select Asian countries, 2002–2008 (%)

Market	2002	2003	2004	2005	2006	2007	2008F
China	12.4%	16.8%	21.0%	25.2%	29.7%	34.9%	39.3%
India	0.6%	1.2%	3.1%	4.8%	8.4%	14.9%	20.9%
Indonesia	3.5%	5.7%	9.4%	14.2%	21.9%	30.6%	36.4%
Malaysia	29.4%	35.8%	46.1%	60.9%	77.5%	76.2%	77.6%
Papua New Guinea	0.2%	0.2%	0.3%	0.5%	0.7%	0.9%	1.2%
Philippines	14.8%	20.7%	29.6%	41.2%	42.1%	51.6%	56.6%
Sri Lanka	3.7%	5.4%	8.2%	12.7%	19.2%	29.6%	33.9%
Thailand	17.4%	31.2%	38.3%	46.0%	51.9%	69.4%	78.9%
Viet Nam	1.9%	2.4%	4.1%	7.2%	13.9%	19.5%	24.1%
Key:	Calculated Data, Q1 2002–2007			Forecast Data, Q1 2008			
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Internet access

The National Telecommunications Commission estimates that there were already 1.4 million Internet subscribers as of 2005, or a little over 1.6 per cent of the population (NTC, 2007) (Refer to Table 5). In fact, as early as 2000, some government figures already had Internet penetration at 1.5 million subscribers (Minges et.al., 2002).

The official government figures, however, do not take into account the number of people who obtain access through public facilities like Internet cafes or from schools and offices, which is difficult to measure. The National Nielsen Media Index 2006 notes that in the Philippines, the majority of people access the internet in internet cafes (Nielsen, 2007).

Table 5: Internet penetration in the Philippines (1996–2005)

Year	No. of NTC-registered ISPs	Est. no. of subscribers (millions)
1996	24	0.100
1997	17	0.200
1998	23	0.300
1999	31	0.350
2000	34	0.400
2001	64	0.500
2002	93	0.800
2003	121	1.000
2004	144	1.200
2005	177	1.440

Source: www.ntc.gov.ph/consumer-frame.htmml (2007)

Impact of Technology & Market Innovations

When the market was opened to more players in the mid-1990s, the state made distinctions between landline services, international gateway facility providers and cellular phone operators. Competition was then introduced in all of them. However, the extent of the competition that new technologies created due to convergence was not anticipated. Technology expanded the reach of telecommunication services and provided people with more alternatives. The choice people made were no longer limited to which form costs less to obtain and use, but rather, which one was most cost-effective based on the lifestyle they maintained.

This section discusses how new technologies have helped in the expansion of access to basic telecommunication services, and how it allowed competition to thrive by giving people a choice among different service providers (i.e. Smart, Globe, Sun, PLDT, Bayantel, etc.), how they would pay (pre-paid or post-paid), and the manner by which they would communicate (i.e. voice or text/SMS).

Expansion

The advantage of wireless technologies such as the mobile/cell phone over “landlines” is the cost and ease of network expansion in un-served areas (Hills & Yeh, 1996). Cellular phones are an attractive alternative where it is difficult to install fixed-line networks because it can be installed more rapidly (Hamilton, 2003). In so doing, it can alleviate waiting time for potential subscribers and reduce unsatisfied demand. This is especially true, in archipelagos that are composed of many islands, and difficult to reach terrain, such as the Philippines. In fact, with cell phone acquisition costs going down, (Minges et.al., 2002) it has been estimated that the Philippines could extend telephone service to all 32,000 barangays without ‘telephone’ service for only US\$ 23.5 million. In this sense, developments in information technology have helped overcome assumed technological and financial barriers to universal access that prevent the public and private sector from providing services in far-flung locations.

While it cannot be denied that competition played a part in the increase in access to ICTs, access would also have not increased without two important innovations that came with the introduction of the cell phone in the Philippines. The first was SMS also known as texting. It was the “killer application” that helped make the GSM platform dominant in the market. The other was prepaid cards. These two innovations helped make communicating more affordable to the lower income strata of the society (Alampay, 2006; Celdran, 2002; Minges, 2002).

It should also be noted that credit loads (i.e. loading calling credits onto a mobile/cell phone) went hand-in-hand with declining costs of the handset. Handset costs have also declined as the technology has improved and matured, and as a second-hand market grew with it. The secondary market grew as first generation users bought new units and passed old units to family and friends (Norella, 2007). The negative side of it is the increase in criminal activities (i.e. cell phone thefts) as the underground informal ICT economy developed for the ‘information have-less’ (Qui, 2007).

Affordability & choice ...the impact of SMS and prepaids

In 1998, at least 63 per cent of Filipino households could not afford a telephone in their home⁶ (DOTC, 2000a). And yet, since 1998, there has been an unprecedented expansion in the ownership of cell phones, to the point that there are five times as many *active* cell phone subscriptions than *available* telephone lines. This suggests that cell phones may be more “affordable” even as landline connection fees and their call rates have also declined. TELOF’s Engr. Noel Borres provides his explanation for this by saying that:

⁶ This was based on ITU’s telephone affordability threshold which assumes that telecommunications expense takes up 5% of the household budget.

There's a misconception that the Philippines is very rich because a lot of people are buying cell phones. I take a contrary view precisely because people are poor they buy cell phones. How much is a residential line? They charge me Php1000 a month (US\$18.50) whether or not I use it. A cell phone is much more expensive. But, its value added service through SMS (short messaging system) is one peso per message. So if I load Php300 (US\$5.55) and consume it in 2 months the average (cost per month) is still cheaper. The cost of owning a telephone access is Php150 per month (US\$2.77/mo) (for the cell phone). So (people) are actually forced to opt for a cell phone rather than to opt for a landline that costs Php1000 per month. There lies the value....

This helps explain how SMS and prepaid options helped spur the growth in the cell phone industry (Minges et. al., 2002).

Short message service (SMS)

SMS was originally introduced in 1994 as a free service (Celdran, 2002). Only in 2000 did mobile providers began charging for SMS use, but partly due to great consumer resistance and pressure, the prices have remained reasonable (Lallana, 2004). SMS allowed people to stretch their telecommunications budget given that it costs less to use than voice calls. The relative low cost of SMS in the Philippines has also helped foster a culture of texting.

It is difficult to overstate the impact of SMS in the Philippines, as evidenced by the sheer volume of messages sent by Filipinos. For example, in 2001, Smart and Piltel was already averaging 50 million text messages a day. This translates to at least six messages per subscriber per day (PLDT, 2002). Four years later, the figure had multiplied five times, with the NTC estimating that the Filipinos exchanged an average of 250 million messages a day in 2005. This shows that while cellular companies started charging for SMS in 2000 and have been reducing free text message allocation to their subscribers, the number of text messages exchanged continues to rise. As a result, text messaging related services in 2005 amounted to about 45% of Smart and Piltel's cellular revenues (PLDT, 2006), while it accounted for about 36% of Globe's wireless revenues.

This increase in use of text messages is also a result of increased competition. With the entry of a third player, Sun Cellular, text messaging reached a high in 2006, when Smart and Globe, following Sun Cellular's lead, issued unlimited text promotions for a low fixed price. By the end of 2006, there were approximately 500 million SMS per day through Smart Communications (Wireless Intelligence, 2007). This means it is likely that the daily SMS total in the Philippines exceeds one billion – over 10 SMS per day for every man, woman and child in the country.

Because of its popularity, SMS/texting was eventually adopted to landline phones. PLDT reported that its TXT 135 landline based texting was able to get 1 million subscribers in less than a year (PLDT, 2002) and newer payphones already allow two-way texting. By the end of 2002, Smart already had 6,802 of these types of payphones spread out in 671 towns and cities nationwide.

SMS remains popular today. A recent report by the GSM Association found that consumers in Asia still prefer text messaging over any other mobile data service. Even users in North America and Europe find texting or SMS indispensable to them (Ho, 2007).

Prepaid cards

The prepaid option for telecommunications services was originally introduced for cell phones in 1998 (Celdran, 2002). Since then, at least a million prepaid subscribers have been added to the network annually.

This option helped increase access to owning a cellular line by overcoming previous barriers to ownership. These include having a credit history, the need to go through tedious registration processes, and the whole market structure associated with paying the telephone operator. With prepaid, one simply has to have a cellular phone, secure a SIM card and be able to receive text messages and voice calls, even without credit (for an identified period before the account is activated). Neither identification, proof of credit history nor registration are required to purchase a cell phone and a SIM card. Moreover, SIM cards usually come with free text messages or credit. The new subscriber can then choose from a variety of amounts and promotional packages to load additional credit and start sending text messages (See Table 6).

Table 6: Mobile Service Rates for Pre-paid Users

		Globe		Smart		Sun Cellular	
SIM	\$1.38	P69 – 64K SIM (G-cash ready)	\$1.80	P90 Talk and Text Power SIM plus	\$1.00	P50 – Super Value SIM (w/ 2 day 24/7 unlimited call and text, 10msgs free to other networks)	
	\$1.00	P50 – (64K SIM with free 3 days unlimited text – current promo)	\$3.00	P150 – SuperSIM-3 64K (P50 preload value)	\$2.00	P99 – Power SIM (w/ 4 days unlimited call and text, 15 SMS to other networks)	
	\$4.00	P200 – 128 XL SIM	\$4.00	P199 SuperSIM-3 64K (P100 preload value)	\$3.00	P150 – Supreme SIM (w/ 7 days unlimited call and text, 30 SMS free to other networks)	
Prepaid Card (scratch)	\$2.00	P100 (15 free SMS)	\$6.00	P300 (33 free SMS)		Regular:	
	\$5.00	P250 (30 free SMS)	\$10	P500 (83 free SMS)	\$1.00	P50	
	\$6.00	P300 (35 free SMS)		(SMS/calls for all networks possible)	\$3.00	P150 (free 25 SMS msgs to all networks)	
	\$10	P500 (85 free SMS)				Unlimited call&text cards	
	\$20	P1000 (250 free SMS)				\$2.00	P100 (5 days, sun to sun)
		(SMS/calls for all networks)				\$3.00	P150 (7 days, sun to sun)
						\$8.00	P400 (30 days, sun to sun)
							Unlimited text (Sun to Sun)
						\$3.00	P150 (unlimited text, 4 hours free call)
						\$1.00	P50 (unlimited text, 7 days, 1 hour free call)
					\$0.40	P20 (Textlite-2 days free text)	

	Globe		Smart		Sun Cellular	
Autoload / Share a Load ¹	\$0.04	Autoload Max P2 and above	\$0.04	E-Load P2 and above		ExpressLoad
(via OTA)	\$0.50	P25 and above (recommended for retailers)	\$0.60	P30 and above (recommended for retailers)	\$0.40	P20 and above (and unlimited text promos recommended for retailers)
Active distributors/retailers		400,000 (2006)		700,000 (2004)		No data
Unlimited Text (via OTA)	\$0.40 \$0.80 \$1.60	P20/day P40/2 days P80/5 days	\$0.30 \$0.60 \$1.20	P15/day P30/3 days P60/4 days	\$0.30	P15 text/day with 10 min free voice calls to Sun subscribers P100 (unlimited sun to sun calls for 7 days from 12MN to 6PM)
SMS Rate	\$0.02	P1.00 per text (160 characters)	\$0.02	P1.00 per text (160 characters)	\$0.02	P100 per text
Call Rate	\$0.13 \$0.15	P6.50/min (for Globe and Touch mobile) P7.50/min (other networks)	\$0.13 \$0.15	P6.50/min (for smart and smart and other smart brands) P7.50/min (other networks)		

Source: Smart Communications (2007). <http://www.smart.com.ph/Buddy/products/Rates.htm>, Globe Telecom (2007) <http://www1.globe.com.ph/products.aspx?secid=169>, Sun-Cellular (2007) <http://www.suncellular.com.ph/whatsnew.aspx>

Data on active distributors and retailers from Proenza (2007, pp. 5–6)

Table 6 illustrates an important point in mobile product pricing in the Philippines. In many developed countries the cost to send an SMS is equal to one minute of voice airtime (i.e. a ratio of 1 to 1). In the Philippines the ratio is 6.5 SMS for every minute of voice calling. Therefore, it is possible that SMS intensity in the Philippines is more geared to pricing than to cultural factors, which suggests the experience could be replicated in other countries where the cost of sending an SMS is much lower than making a voice call.

With prepaid, people can better manage their consumption. They can also buy loads in any convenience store, and this is consistent with the local buying culture of “tingi,” or incremental small purchases instead of wholesale. This is an important factor in explaining the popularity of prepayment methods in the Philippines and other developing countries. The introduction of prepayment changed the cost/benefit balance and perceived income threshold for consumers by reducing the barriers to universality in a way that traditional landline tariffs never did. Prepaid services made the cost of subscribing to a line cheaper. It also made the communication costs directly related to a person’s actual use whereas “landlines” have a fixed monthly rate regardless of use. The growth in low cost prepaid services is the most critical factor in the growth of mobile use in the Philippines and other developing countries. It has led to a rapid growth in the market, growth largely driven by the lower income strata of the population.

The company most dependent on this niche (i.e. prepaid customers) in the Philippines is Smart. Indeed, by the end of 2005, 99 per cent of Smart Telecom’s 20.4 million subscribers used prepaid (PLDT Financial

Review, 2005:36). In 2005, the prepaid segment comprised 96 per cent of Globe Telecom's subscribers, and grew by 27 per cent on the year (Globe Telecom, 2006:19).

Because of its success in the cell phone market, the prepaid option was eventually offered for the landline market in September 2000. For fixed line prepaid subscribers, PLDT charged P1.00 per minute for local calls as opposed to unlimited local calls at fixed monthly charges for post-paid subscribers. However, international and long distance calls for both prepaid and post paid fixed line subscribers are charged the same rates (PLDT Financial Review, 2005). Prepaid fixed line subscribers of PLDT increased from 7 per cent in 2001 to 17 per cent in 2003 (Lectura, 2004), but decreased to 15 per cent in 2005 (PLDT, 2005).

Despite the fact that mobile/cell prepaid cards were relatively inexpensive – originally priced at US\$4.63 and US\$9.25 and consumable over a two month period – they were still too expensive for many of the poor. Therefore, another strategy was to provide for electronic loading of smaller prepaid rates that must be used up over shorter time periods (e.g. three days to a week). This model of payment facilitated expansion of mobile phones to lower income groups.

A further enhancement of the strategy to reach even poorer segments was to provide even smaller increments made possible by “autoload/e-load” (over the air – OTA – purchase of credit) and “pasaload”/“share-a-load” (over the air sharing of credit). Autoload/E-Load are easily available from retailers or micro-entrepreneurs with small stores selling similar “sachet” goods and items located within the neighbourhood. *Pasaloads*, on the other hand, refers to over the air sharing of credit from subscriber to subscriber within the same network, and is offered by both Smart and Globe. More recently, Globe has issued a promo called “Ask-a-Load”, which allows a subscriber to literally request via SMS a particular amount of credit from another subscriber, which the latter could then choose to approve or disapprove. In this regard, the exchange of mobile credits, or “loads,” has become a de facto form of micro finance in the Philippines.

However, over the air purchase of credit sharing normally have shorter validity periods. Also, higher value credits exchanged over the air (i.e. \$2.00) do not carry with them the free SMS messages that are loaded for the same amount with prepaid scratch cards. Nonetheless, this scheme has become very popular because it enables the sharing of credit for as low as P2 (\$0.05) from one subscriber to another. Retailers prefer selling higher increments (i.e. \$0.50–\$0.60 and above) in order to generate profit. Subscription to new promotions, such as unlimited text and calls (i.e. unlimited SMS for \$0.03 per day within the Smart network, \$0.04 per day for Globe), are also possible through OTA purchases from retail stores. Two-thirds of Smart's prepaid users were loading credit electronically at the end of 2003 (Proenza, 2007: cited PLDT, 2004). For Globe, on the other hand, AutoLoadMax accounted for 90 per cent of reload transactions by December 2004 (Proenza, 2007: cited Globe, 2006).

Clearly SMS and prepaid services have been instrumental in expanding the mobile market to less affluent Filipinos. This is illustrated by the reduction in the average revenue per user (ARPU) of PLDT's cell phone services in 2001 in Table 7, below. The reduction in the ARPU was attributed to the changing demographic profile of PLDT's subscriber base (PLDT 2001).

Table 7: PLDT Cell phone Subscribers' Average Revenue Per User (in US\$)

Service	Year	
	2000 (cost in US\$)	2001 (cost in US\$)
Prepaid	16	11
Post-paid	40	34
Blended	18	11

Source: PLDT Annual Report, 2001

The most current monthly ARPUs reported in 2005 are between \$5–6, with the lowest monthly prepaid tariff for low usage customers only US\$1.24 (PLDT, 2006; GSMA, 2007). These data suggest that an increasing number of lower income households are subscribing to cell phones, and their average monthly consumption of services is lowering the ARPU. The ARPU for the prepaid option also shows that households are paying less on a monthly basis with this option compared to having a phone line with monthly fixed rates of approximately US\$18 that they may or may not consume in actual services/calls.

New technologies, such as the cell phone, have helped expand people's communication options. To illustrate, residential lines offer the convenience of unlimited minutes on calls to other landline phones, but their installation and monthly fee (see Table 8) make the cost prohibitive for many people (Garnham, 1997b). These factor into how people choose the kind of ICT to use.

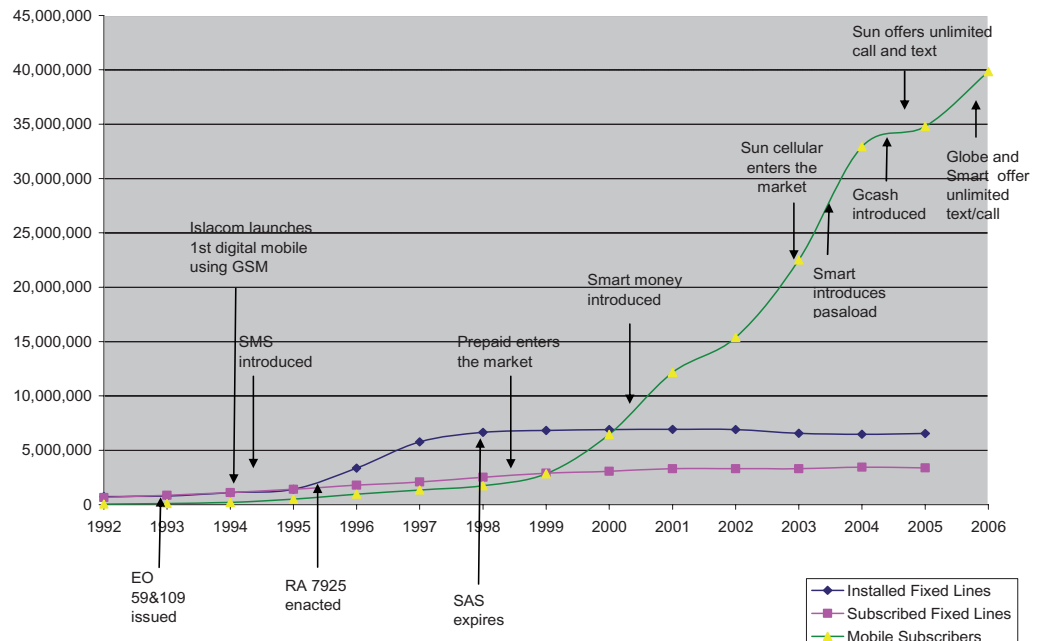
Table 8: Comparison between fixed and mobile monthly charges:

	PLDT fixed residential* (Manila)	Globe Mobile (Gtext)**
Installation fee	US\$ 37	0
Monthly fee***	US\$ 18	US\$ 9
Free minutes	Unlimited	20
Free SMS	0	500

* from PLDT 2001 Annual report; ** for this plan you already receive a free cell phone; *** as of 2004

In Figure 1, below, ICT policies in the Philippines are charted together with the introduction of new technologies and/or services and the expansion of both fixed-line and mobile telephone access. The figure clearly shows the increase in availability of “landlines” was not accompanied by a parallel increase in subscribed landlines. The figure also shows the dramatic increase in the use of mobile phones following the introduction prepaid subscriptions.

Figure 1: Policy, technology & access timeline



Source: National Telecommunications Commission, various years

Data for 2006 cellular subscribers from Proenza (2007), for Smart/Piltel & Globe/Islocam only. No available data for fixed installed and subscribed lines for 2006

Summary of factors leading to increase in telecommunications in the Philippines

New government policies on the provision of basic telecommunication services coupled with technological developments since 1993 have helped contribute to the rapid expansion of ICT services in the country. First, higher teledensity has resulted from the early policy initiatives of the government to liberalize the sector by breaking up PLDT's monopoly; introduce more players in the sector; and impose mandatory service obligations to international gateway facility providers and mobile phone operators to roll-out telephone lines under the service area scheme (SAS). The notable increase in telephone lines coincided with the period that the SAS was implemented. Despite increased availability of landline services, however, subscription to government and private sector landline services did not grow as projected and regional distribution remained uneven.

Second, new technologies like the cell phone made competition in the industry possible by expanding alternatives for people to consider, helping companies to innovate and offer different payment plans, providing better services and expanding coverage. New services such as SMS and prepaid plans also made using telephones and mobiles more affordable to lower income households. These two innovations helped push cell phone ownership to exceed both landline subscriptions and teledensity. This was also complemented by lower handset costs (GSMA, 2007) and a second-hand market for mobiles. As such, new technologies and the declining cost to acquire them have made universal access down to the "barangay" level more feasible.

Third, new technologies not only made competition possible in a telephone industry long considered as a "natural monopoly", it also led to the issue of whether basic telecommunication service should go beyond just voice to access to other value-added services such as the internet and other data services like SMS and simple mobile applications, such as e-commerce.

Overview of simple mobile applications in the Philippines

The widespread growth of access to mobile phones in the Philippines, coupled with the ubiquitous use of SMS among the population, government, business and non-government organizations, has motivated many actors to rapidly develop applications to take advantage of this medium for communication. As shown in Table 9, below, SMS use in the Philippines is very frequent when viewed in a global comparative perspective. Wireless Intelligence’s list of reported SMS use per month per user indicates that intensity in the Philippines is more than triple that in the next highest operator, in Denmark, ten times that of the largest operator in the U.S. and twenty times that of many operators in other countries. The Philippines really is the “SMS capital of the world” but it must be noted that these data only cover a limited number of operators.

Table 9. Global overview of SMS intensity

Rank	Operator	Country	SMS messages per user per month, Q4, 2006
1	Smart	Philippines	1,008
2	Piltel	Philippines	446
3	Telia Denmark	Denmark	315
4	Maxis Malaysia	Malaysia	285
5	Movilnet Venezuela	Venezuela	136
6	Verizon Wireless	United States of America	102
7	O2 UK	United Kingdom	97
8	Netcom	Norway	94
9	O2 Ireland	Ireland	87
10	TMN	Portugal	67
11	Cingular Wireless	United States of America	67
12	Manx Telecom	Isle of Man	57
13	Belgacom	Belgium	55
14	Telefonica O2 Czech Republic	Czech Republic	54
15	Starhub	Singapore	52
16	Elisa (Radiolinja)	Finland	51
17	China Unicom	China	47
18	Sonera	Finland	43
19	Telstra	Australia	42
20	Swisscom	Switzerland	40

This table shows operators where we have data – either reported, calculated, estimated or forecast. Some operators are missing from this list because there are no relevant data for them.

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In recent years a wide range of mobile applications have been developed in the Philippines. Some of the most noteworthy and more common applications are presented in Table 10, below.

Table 10: SMS-based applications

Development Area	Service	Description	Agency
General ²	TXTGMA	Channel to bring concerns to the President	OP
Overseas Filipino Workers (OFW)	TXTDFA	OFWs and relatives in the Philippines can seek assistance from the DFA	DFA
	+6392090FWSOS ³ (+639209639767)	SMS system for OFWs in distress, allows connection with NGOs/GOs. Enables case documentation, classification and analysis of OFW issues. A tool for advocacy, esp. for enacting new OFW-related laws.	Center for Migrant Advocacy (CMA), DFA-OWWA, NGOs
	Smart Padala	Cash remittance service via SMS, from sender abroad to the mobile of recipient in Philippines.	
	Globe Quick Remit and Load	Allows OFWs to send cash and load to family and friends from Hong Kong, Singapore, Taiwan, Japan, Saipan, Guam, USA and Canada.	
Public Safety	Patrol 117/Text 2929	For emergency or police assistance. Crime reporting. Call/Text location of criminals, report traffic accidents, kidnapping incidents, fire, etc. Report police wrongdoings.	PNP
Education	DeText 2622 ⁴	Advisories on test schedules, news releases, holiday announcements, cancellation of classes. Public can SMS concerns/inquiries to the education department using mobiles.	DepEd, Smart
	Text2Teach ⁵	Part of BridgeIT program, cost effective way to deliver educational video to classrooms in underserved schools in developing countries through mobile tech. Schools are equipped with a satellite dish, TV, digital server/recorder and 2–3 mobiles. Teachers SMS request for videos, which are downloaded via satellite to a Nokia digital recorder, connected to the school's TV.	Text-2-Teach managed by Ayala Foundation. Nokia provides platform and system integrator role.
	Text WHAT IS to 288	Consult a dictionary via Text	Smart
Health	M DOK Mobile tele-health and info system for health workers	Mobile tele-health system with store-and-forward tele-consultation and offline health information resources for community health workers.	Synapse, Inc.
Politics and Political Mobilization	Text COMELEC 2898	Report election mishaps/cheating, file complaints, determine/verify precinct number. ⁶	COMELEC
		Information gathered from TV, radio and print media reports delivered via Internet and SMS.	TV networks, Mobile Networks
		SMS used for political campaigns, esp. for party list groups. SMS helped topple government in 2001 (directed 700,000 demonstrators to People Power shrine to demand resignation of President Estrada). SMS used in 2004 election (e.g. voters received exhortations from parties via SMS). ⁷	Civil society, politicians
Environment	Bantay Kalikasan		
	Text USOK (suspended)	Text plate numbers of smoke belchers	ABSCBN-Bantay Kalikasan, LTO
Employment	Trabaho I Text Mo ⁸ 2376 for Globe; 2476 for Smart	Local and overseas job vacancies posted in the Phil-Jobnet can be inquired by jobseekers through SMS	POEA, Phil-Job Net
Civil Service	TXTCSC ⁹	Text/report civil service complaints/complements, suggestions. 1000–1500 messages per month: among top SMS information/ complaint services.	CSC

Development Area	Service	Description	Agency
Taxation	"Premyo sa Resibo" - Bayan I-Txt ang Resibo promo ¹⁰	SMS Raffle to encourage issuing and demanding receipts; build database of receipt issuance; data mining for anomalies and tax evasion. Revenue from SMS does not exceed cost of program (P40M in prizes and P40M in marketing costs since re-launch in 2006). Present rate of anomalies discovered by data mining by PSR: 100,000 monthly. If 50% fined P10,000, potential revenue to RP annually is P6b!	BIR, PAGCOR, PhilWeb
Agriculture	B2BPriceNow.Com11	e-Commerce program for farmers and traders, provides up to minute agri. price updates for farmers, fishers, farmer coops and SMEs (m-applications started in 2007)	B2B Price Now.Com Landbank of the Philippines
	Smart 700RICE – SMS-Based rice seed inventory System12	Real-time seed stock inventory; enables farmers to query seed stock through SMS. Link breeding centres, SeedNet and commercial seed growers. Piloted in two farmer cooperatives.	Philippine Rice Research Institute
M-Commerce/ Banking	Text A Payment	Microfinance clients make loan payments using mobiles. Once the e-money is in the mobile account, client can SMS the loan payment; Transaction protected by MPIN.	Globe, Rural Banks (through RBAP)
	Text a Deposit	Clients can make deposits into accounts with a rural bank using mobiles. Deposit instructions encrypted & password protected.	Globe, Rural Banks (through RBAP)
	Smart Money	A MasterCard issued by BDO, co-branded with Smart. Accepted by 20m businesses worldwide. Allows transfer of funds within Smart Money; POS terminal purchases at MC establishments; withdrawals via ATMs; remote m-Com purchases; ordering and paying for deliveries; Virtual Card purchases without exposing payment information; reloading of mobile.	Smart, Banco de Oro
	G-Gash	An SMS-based m-Commerce service allows person-to-person money transfers and remittances, microfinance applications, bill payments, and purchase of goods and services. Partnered with RBAP to facilitate microfinance transactions via SMS	
	Bid Shot ¹³	Auctioneers/sellers accept payment via G-Cash and Smart Money	
	E-Store Exchange ¹⁴	Allows shopping using a mobile phone	
	E-Bay- Philippines (www.ebay.ph)	Allows online selling/buying, payments accepted via G-Cash/Smart money	E-Bay
Transportation	Call/Txt LTFRB Hotline 0921-4487777	Report driving of public utility vehicles, delivery vans, etc	LTFRB
	G-Pass	MRT commuters can pay fares with a tap of their RFID (radio frequency ID) chip on turnstile. Reloads anytime and anywhere via G-Cash.	Globe, MRT
Consumer Complaints	DTI Consumer Complaint ¹⁵	Information on consumer rights, issues, can SMS consumer complaints	DTI
Utility Services	POWERTEXT – Text MERALCO at 2366 ¹⁶	Menu of services, rates, power advisory and power saving tips. On better ways for water companies to communicate one respondent said: "We cannot afford computers or internet... send SMS instead which are cheap, fast, very interactive and popular even among the poor." ¹⁷	Meralco, Globe, Smart

Development Area	Service	Description	Agency
Religious / Spiritual / Inspirational	SEEK 2346, AMEN 2971, Reflect MMS, SEEK 29766, Reuter 2978, Soc 2978	Subscribe to bible readings, mobile rosary and way of the Cross via SMS. SMS for evangelization, forwarding chain religious SMS and SMS for religious fests	Varied
	Varied	SMS when Church concerns at the fore. Pope John Paul II often subject of SMS rumours. Millions of SMS sent on Pope's death. ¹⁸	
Entertainment	Varied ¹⁹	SMS music requests to radio stations	TV and Radio Networks, Cellular Phone Networks
		Vote through SMS TV shows (ANC Square Off, Pinoy Idol, Pop Superstar, Big Brother) ²⁰	
		SMS to become home partners and win prizes (e.g. Eat Bulaga, Wowowee, etc.); be a studio contestant for TV game shows (Wowowee, GameKMB, etc.); comment on TV and radio programs (all radio programs-AM; ANC); updates on TV shows and celebrities (Pinoy Big Brother, ABS-CBN and GMA Celebrities); TV Show Trivia contexts (Asian Treasures); ring tones of TV show musicals/theme songs (Globe, TM, Smart); Ktxt. Celebrities as textmates	
		Download logos, music, movies, ringtones, jokes, games, news, video, etc. through SMS	Globe, Smart, Sun
Dating	Smart C Me	Find-a-friend, speed dating service, for 3G users	
	Globe IMEVRWHR	Instant messaging service with unlimited chat, voice messaging and photo sending for fixed fee.	
Others	Chikka.Com	Text for Free from a computer	Chikka
	Infotxt ²¹ for BUSINESSES	Send bulk SMS via computer, info and updates via SMS, customer feedback for businesses (e.g. golf reservations, inventory monitoring, etc). Bulk ordering via mobile phones (Payatas anecdote)	GiveMeUnlimited
	TextSSS Inquiry Facility ²²	Members inquire about contributions and status of loan applications using SMS.	SSS
	Text GSIS (248 Smart, 2390 Globe)	GSIS members SMS loan queries, receive news and updates. Queries on salary, loan status, balance and check# answered by GSIS Infotext.	GSIS
	GSIS SMS greetings/ announcements	GSIS sends birthday/holiday greetings to registered government employees	GSIS
	Text LUK4 (2851 Globe, 2951 Smart) ²³	Mobile Yellow Pages, allows subscriber to look for an establishment	
	Smart Person Finder, Globe Tracker	Track the location of friends celebrities	
	Globe Finder	Finds restaurants, stores, churches, etc. and gives instructions on how to get there.	
	Flights to 288	Get flight schedules	Smart Zed
Find Alumni (SEND ALUMNI 2343)	Find old friends and alumni	Globe Infotext Service	

Of course, the list presented in Table 10, above, is difficult to “digest” without disaggregating it into smaller parts. Consequently, four main areas are discussed on the following pages:

1. Citizen feedback mechanisms;
2. Information dissemination;
3. Service delivery; and
4. m-Commerce.

Citizen feedback

Among the first applications developed through SMS, were mechanisms for providing citizens with the capability to air their complaints or commendations and requests for assistance. Among the pioneer programs were TXTCSC, ENERTXT, TXTGMA and TXTUSOK.

TXTGMA receives everything related to government and is meant for Filipinos to bring their concerns directly to the President.⁷ As such, the President is expected to intervene in issues like drug proliferation, complaints about delays in government projects, projects and officials, and requests for assistance. The peak number of requests, in its initial year, was 18,000 messages a month. This eventually levelled off to an average of 5,000 per month due to the reduction of free SMS allotment to subscribers, emergence of other SMS service by other government agencies and local government units, and reduction in TXTGMA operating time (Lallana, 2004).

TXTCSC was developed for the Civil Service Commission to provide people transacting with any government agency a tool to instantaneously, at anytime, anywhere: 1) give a report to the Commission; and 2) request and get information about government agencies, programs and services to the Commission. This was instituted as part of its Mamamayan Muna (Citizen First) Program, which was designed to minimize, if not totally eradicate, discourtesy, arrogance and inefficiency. The Civil Service Commission only had to make available one text number that corresponded to TXTCSC on the mobile phone keypad (0917-8398272), which the public can send their messages to (Dela Pena, 2002).

Finally, TXTUSOK, although no longer operational today, was an example of partnership between government, through the Land Transportation Office (LTO), and a non-governmental organization, through the ABS-CBN Foundation. Given that the 70 per cent of Metro Manila’s pollution is attributable to vehicle emissions, the primary objective of the program was to combat smoke belching by encouraging the public to report non-complying vehicles. Over 300,000 reports were received in its first 21 months of operation, 84% of which were through SMS. As part of its systems of control, only vehicles reported by at least five different individuals/phone numbers within a two-week period were acted upon by the LTO (Lallana, 2004:33–34).

These types of citizen participation through SMS remain popular today. Current variants include citizen reporting of election irregularities (e.g. Text COMELEC 2898), emergency response (e.g. Text 117), and reckless driving (e.g. Text LTFRB Hotline). It is also no longer limited to national government agencies, as more and more local government officials provide numbers where their constituents can directly send their messages.

There are commercial forms of generating citizen feedback through polling as well. These are similar to how competitions such as the American Idol franchise poll for people’s preferences. Local news and public

⁷ GMA are the initials of the current Philippine President Gloria Macapagal Arroyo.

service programs often ask people to text their opinion regarding highly contested issues, with questions often phrased in simple “Yes” or “No” queries. These forms of polling people’s opinions can easily be applied in more official activities such as referenda and actual elections. However, the limitation for doing this is that access to cellular phones is still not universal, and ownership of mobiles, especially “prepaids,” remains anonymous. It would therefore be difficult to monitor whether individuals vote more than once using different numbers.

Information dissemination

The other side of participation through feedback is the provision of information to the people. A commercial application that facilitates this is GiveMeUnlimited, which allows the user to send bulk SMS/text messages to mobile users via computers and the internet.

These kinds of applications are important for services that require quick dissemination of information to a large number of people (i.e. in case of emergencies etc.). For example, the Department of Education has DE Text 2622, which provides the general public with announcements and advisories on test schedules, press releases, holiday announcements, and the cancellation of classes during storms and floods.

There are, of course, a wide variety of ways to access news updates, sports scores, religious and spiritual message, etc. via mobile phones.

Service delivery

A convergence of technologies has allowed the mobile phone, through SMS, to become a medium for citizens to access informational databases through both public and private providers of public services. For example, in recent national elections both Smart and GLOBE were able to provide citizens with information about their voting precinct number. This type of information was crucial, as it had been a common complaint in the past that voters were disenfranchised because they did not know where to vote.

Another election-related service was developed by the National Movement for Free Elections (NAMFREL). In the 2004 elections, NAMFREL piloted an SMS-based system for a quick-count (the Philippines is notorious for its lengthy national election tallying of votes). As a control measure, three different individuals would send electoral reports, and only when all three sources were in agreement, were they tallied. However, while the initial pilot testing went well, its implementation on the national scale was problematic, as the system could not handle the resulting influx of data. In principle, however, this is an application worth considering, especially when aggregating nationwide information regarding health and education, as well as other human development indicators.

A fairly common service involves accessing flight schedules via SMS, which is especially helpful for the people making arrangements for ground transfers and from the airport.

Members of the government pension fund (GSIS) can send and receive text messages from the GSIS on their loan queries. GSIS can also text its members regularly for advisories and updates. Automated systems through GSIS’s Infotext can also answer queries on salary loan status, balance and loanable amount, and check number of a salary loan applied.

SMS has also been used for some health services. In Pasay City, it has been incorporated in its Community Health Information Tracking System (CHITS) to send clinical reminders. This service enables the staff

in health centers to send SMS messages via computer system templates to patients for follow-up and medical intake reminders. It has been targeted for use in three areas: childcare for vaccination follow-ups; maternal care for pre-natal follow-ups and anti-tetanus vaccinations; and the National Tuberculosis Program for the DOTS treatment protocol (Domingo, 2007- forthcoming).

A similar 'reminder' service is being implemented by several religious organizations. According to Mr. Borromeo of Kerygma, there are services such as Soul Kit, which send daily SMS religious messages and Star Caller that deliver pre-recorded 30-second reflection points.⁸ These methods for disseminating information can easily be translated in other development programs, and in the recent national elections, politicians have begun utilizing SMS as a means for sending their message across, both positive messages as well as negative advertising.

m-Commerce

A subset of e-Commerce that pertains to mobile ICTs is mobile commerce. Mobile commerce, or m-Commerce, refers to the buying and selling of goods and services through wireless handheld devices.⁹ Mobile commerce involves the storage, payment, receiving and sending of "electronic currency" through the use of mobile phones.

In the Philippines, m-Commerce started in 2000 when mobile banking was introduced in the banking system.¹⁰ Mobile banking, or m-Banking, refers to conducting bank transactions through wireless handheld devices. These transactions and services may include account balance inquiry, transfer of funds (from one's own account to another account or even between accounts at different banks), payment of credit card bills, water bills and electric bills, and purchase of mobile phone loads charged to a bank account or a credit card.

Prior to the creation of electronic currency for mobile phones, the seeds of m-Commerce had already begun with the development of Pasa-load, or the capability of individuals to transfer between users load credits (Lallana, 2004). Some non-profit organizations, such as Kerygma, have even expressed interest in exploring the possibility of converting these loads back to currency, thereby raising the possibility of raising donations through m-Commerce.

Eventually, the two major mobile phone service providers in the country, Smart Communications and Globe Telecom, developed their respective models for m-Commerce: Smart Money and G-Cash.¹¹ This is significant, because already in 2002, it was reported that 44 per cent of mobile phone users worldwide wanted the capability to use mobile phones for small cash transactions, and yet only two per cent had done so (Lallana, 2004).

Smart Communication's Smart Money

Smart Communications, in partnership with Banco de Oro¹², introduced Smart Money in 2000 (Proenza, 2007). It was considered a breakthrough

⁸ In presentation given at a Round Table Discussion on ICTs and Spirituality held at the Development Academy of the Philippines, in Tagaytay City, May __, 2007.

⁹ Whatis.com, "m-commerce - Whatis.com Definition", website on-line; accessed from http://searchmobilecomputing.techtarget.com/sDefinition/0,,sid40_gc214590,00.html; accessed on 7 April 2005.

¹⁰ Alex Ibasco, "mCommerce, eCommerce: A Winning Combination," Head of Smart Mobile Commerce; [presentation in CD]; presented at The 3rd National E-Commerce Congress, 18 November 2004.

¹¹ A third player, Sun Cellular entered the market in 2004, but its e-commerce applications are currently limited to credit reloading.

¹² Banco de Oro is one of the top 7 commercial banks in the country, with total assets of US\$4.2 as of March 2006 (Proenza, 2007 citing the Economist, 2006)

in mobile commerce in the world. Smart Money is a debit card (pre-paid card), which can be accessed using an automatic teller machine (ATM), a credit card terminal or a mobile phone. The Smart Money card allows users to withdraw credit or to charge purchases through any MasterCard terminal. It also allows users to conduct transactions using mobile phones such as sending cash credit from a Smart Money account to another person's Smart Money account. Subscribers are informed of their Smart Money transactions through mobile phone either for information or for transaction confirmation. Smart Money is a free¹³ service for Smart subscribers, but it requires a minimum of 64K SIM memory.

However, there are several limitations to the uptake of Smart Money, mainly related to the high transaction cost in terms of time and money as opening a Smart Money account requires going to a Smart Wireless Center, filling in a form and paying a fee for the plastic card. The card, in turn, is received through regular mail after a few weeks. Another barrier to the usage of Smart Money is the limited number of methods to load cash credits into the Smart Money card. There are three ways to load credit to a Smart Money card:¹⁴

1. Through mobile banking – from an enrolled bank account to Smart Money;
2. Over-the-counter – through a Smart Wireless Center cashier; and
3. Through Smart Money reloading centers – through merchant partners such as Tambunting Pawnshop and SeaOil Gas Station.

These different modes of loading credit, hand-in-hand with the Smart money platform, facilitate its popular services for electronic loading of credit and cash remittance. Today, Smart Money is used between e-load dealers and their retailers as it allows retailers to buy mobile phone loads from their retailers without needing to meet face-to-face. It was estimated that at the end of 2006, 20 per cent or 5 million of PLDT's total prepaid customers, were registered Smart Money Users (Proenza, 2007: 6). Smart Money transactions among these users averaged US\$ 257,200 per day in 2006. In addition, US\$28.9 million in remittances through "Smart Padala" were recorded for the same year.

Globe Telecom's G-Cash

In October 2004, Globe Telecom introduced G-Cash, an electronic money transfer facility that turns a mobile phone into an electronic wallet with the following services:

1. Purchasing of goods and services over-the-counter or remotely: G-Cash allows subscribers to pay for goods and services at G-Cash partner merchants¹⁵ using G-Cash. These G-Cash partner merchants can exchange cash into G-Cash ("cash-in") or G-Cash to cash ("cash-out").
2. Sending and receiving of money transfers locally or from abroad: G-Cash allows subscribers to receive domestic and international remittances. To accomplish this transaction, a sender goes to a remittance partner¹⁶ in the Philippines or abroad, fills in a form and gives the

¹³ Although Smart Money is a free service, there is a fee for associated the debit/credit card.

¹⁴ Brad, customer service representative of the Smart Padala Hotline (*7788); telephone interview; January 2005.

¹⁵ G-Cash partner merchants include National Bookstore, Mercury Drug and Burger King. For complete list of merchants, see <http://www.myglobe.com.ph/gcash/partners.asp>

¹⁶ G-Cash international remittance partners are located in Hong Kong and UK. For an updated list of international remittance partners, see <http://www.myglobe.com.ph/gcash/partners.asp>.

remittance to the remittance partner. The remittance partner sends the equivalent peso amount to the recipient in the Philippines. The recipient then receives G-Cash credits in their mobile phone that can be exchanged for money through G-Cash partner merchants.

3. Payment of utility bills and mobile phone airtime credits: G-Cash allows transfer of G-Cash from one subscriber to another. This is also known as P2P transfers, which stands for phone-to-phone transfers or person-to-person transfers. The payment of online purchases through fund transfers via G-Cash is also supported.
4. Other services: A few months after its launch, G-Cash extended its services to allow subscribers to purchase mobile phone load and online gaming credit, purchase Metro Railway Transit (MRT) tickets, payment of school tuition fees, loans, and insurance premiums, donate to charities or pay for selected government services.

G-Cash is also used as a wholesale payment facility. As of 31 December 2006, G-Cash handled an average monthly transaction value of PHP 5.67 billion (US\$123 million) and the registered user base of G-cash stood at 500,813 (Globe Annual Report 2006).

Registering for G-Cash is less cumbersome than registering for Smart Money. G-Cash allows registration through a mobile phone and the subscriber only has to submit registration information¹⁷ to “2882,” and then go to any partner merchant to exchange money for G-Cash.

Comparison of Cash, G-Cash and Smart Money

Smart Money and G-Cash each have their own pros and cons, depending on the user and their needs. Table 11, below, compares the benefits of using cash/money, G-Cash and Smart Money.

Table 11. Comparison of the Elements and Benefits of Cash, G-Cash and Smart Money

Criteria	Cash	G-Cash	Smart Money
Customer sign-up	Not needed	<ul style="list-style-type: none"> – Registration is required to activate account, over the air activation is possible – No charge for initial registration – Initial cash deposit not needed but necessary before transactions can be made 	<ul style="list-style-type: none"> – go to Smart center to sign-up for the service – may involve SIM change – initial cash deposit not required, but cash balance needed to be able to make purchases and withdrawals – optional debt card for P220
Identification	n/a	– formal/acceptable IDs required for cash deposits and withdrawals as per Central Bank Policy	– formal/acceptable IDs required for cash deposits and withdrawals as per Central Bank Policy
Current Usage	100%	<ul style="list-style-type: none"> – Limited – Estimated 30% Globe penetration among rural poor – Faster growth in user base – 1.3M registered G-cash users; approx. PHP3m/daily – 400 accredited partners, 3,000+ outlets; also available in 16 countries 	<ul style="list-style-type: none"> – Limited – Estimated 70% Smart penetration among rural poor – Almost flat growth in user base – 3million registered Smart Money subscribers

¹⁷ A four-digit M-PIN of choice, maiden name of the subscriber’s mother, the subscriber’s name, address and telephone number.

Criteria	Cash	G-Cash	Smart Money
Liquidity	100 % liquid – use it anywhere	– Low – need to go to Globe and other merchants to use it or to convert it to cash (Cash-out) – Use it for P2P (person-to-person) transactions	– Moderate – use it Megalink and ExpressNet ATMs – Use it at any MasterCard terminal – Use it for P2P transactions
Security	As secure as your wallet	– Uses an m-PIN in the message body of an SMS message. It is in clear view. – m-PIN needs to be erased from the mobile phone to ensure that a lost/snatched mobile phone does not have the m-PIN in the SMS messages archive	– Uses an STK menu where the m-PIN is never in clear view – Uses encryption when sending transaction commands

Adopted from Soriano and Barbin, 2007; and updated from Wishart, 2006.

Both Smart Money and G-Cash services allow subscribers to pay for goods and services. The difference lies in how Smart Money and G-Cash accomplish these transactions. Smart Money utilizes a secure STK¹⁸-driven and card-based facility that also interfaces with ATMs and MasterCard terminals, while G-Cash utilizes basic SMS technology that can be used by any mobile phone subscriber of Globe.¹⁹

However, there are also elements common to both Smart Money and G-Cash, which can be regarded as the essential components of m-Commerce: value repository; management of currency; credit; debit; and security.

Value repository

M-commerce's electronic currency requires storage to ensure security. The storage of value/currency does not reside in the subscribers' mobile phones or in SIM cards. Instead, the electronic currency of an m-Commerce user is stored in the telecommunications company's database (i.e. the "telcos" keep a record, or account, of the amount of electronic currency users have).²⁰ Therefore, even if a mobile phone or SIM card are lost or damaged, the funds value is retained.

Management of currency

In a traditional (i.e. non-electronic) commerce transaction management of currency refers to the physical handling of cash. A person takes money from their wallet and hands the money to a seller in exchange for a product or service. M-Commerce allows the user to manage their electronic currency with the use of the mobile phone. The user utilizes their mobile phone to check the amount of electronic currency available (balance inquiry), to pay for products and services and to send or receive electronic currency. After each m-Commerce transaction, the user receives an SMS message stating information about the transaction and the user's balance.

Both Globe and Smart allow users to access their m-Commerce account through mobile phones. However, Smart went a step further and gives m-Commerce users a Smart Money card that serves an ATM card, which allows users to withdraw cash from an ATM or purchase goods

¹⁸ STK – SIM ToolKit; a menu-driven service built-in in SIMs to access information or conduct transactions.

¹⁹ "Globe subscribers" include subscribers of TouchMobile (or TM), a separately branded mobile phone service targeting the CDE economic brackets.

²⁰ In contrast, the PLDT phone cards with SIMs "hold" the remaining value of the card electronically in the SIM. Thus, if the card gets lost or physically damaged, the monetary value in the card gets lost or damaged with it.

with the card. Thus, Smart gives users another way of using and managing their electronic currency.

Credit

There are currently three ways of crediting electronic currency into an m-Commerce account:

1. **Over The Counter (OTC):** This involves the physical hand-over of cash to an accredited partner and provision of m-Commerce account information (a SIM number or an equivalent account number). The accredited partner will then use their network facilities to credit the electronic currency into the user's m-Commerce account.
2. **Phone-to-Phone transfer (P2P²¹ receive):** This transaction requires a sender (an m-Commerce user) to send electronic currency to a receiver (another m-Commerce user).
3. **Mobile banking (m-Banking):** m-Commerce users may also transfer cash value from a bank account to an m-Commerce account. This can be accomplished via mobile-Banking functions. To accomplish this kind of transaction, an m-Commerce user needs to be subscribed to the mobile banking services of the telecommunications company²².

Debit

There are four ways of using m-Commerce electronic currency:

1. **Purchase of Load –** This is a simple m-Commerce transaction involving users purchasing mobile phone credits ("loads") using their m-Commerce account. The users have the option to credit the load to their own mobile phone or to another subscriber's mobile phone.
2. **Phone-to-phone transfer (P2P send) –** P2P allows a user to transfer electronic currency from their m-Commerce account to another user's m-Commerce account. Both the sender and receiver of the electronic currency are provided with SMS records of the transaction.
3. **Payment for product/service –**
Via OTA – This transaction involves the payment of a product or service using one's mobile phone to initiate or complete the m-Payment.
Via Credit card POS – As previously discussed, Smart also lets users conduct transaction with a debit card. The debit card allows users to access an m-Commerce account using point-of-sale (POS) machine²³ also known as the "swipe machines" used to validate credit cards. Some transactions require the user's confirmation. This confirmation is sent via the mobile phone.
4. **m-Banking transactions –** m-Commerce allows a subscriber to conduct banking transactions using a mobile phone. These transactions manage real (i.e. brick and mortar) bank accounts. M-Banking allows a user to transfer funds between their bank accounts.

²¹ Whereas P2P refers to "phone-to-phone" transactions in this paper, "P2P" is also used as an abbreviation for "person-to-person" transactions.

²² This function is available for Smart. Although Globe has mobile banking services, it does not have the option to transfer money from a bank account to an m-Commerce account.

²³ POS – Point of sale systems use computers or specialized terminals that are combined with cash registers, bar code readers, optical scanners and magnetic stripe readers for accurately and instantly capturing the transaction. Reference: Answers.com; website online; Available at <http://www.answers.com/main/ntquery.jsessionid=clrbj9o5g5rpm?tna=point-of-sale&sbid=lc03a&method=6>. Accessed on 24 April 2005.

Security

Security measures are put in place to safeguard m-commerce transactions. In the Philippines, m-Commerce is regulated by the Bangko Sentral ng Pilipinas. The Anti-Money Laundering Act (AMLA) also comes into play as measures are entered into m-Commerce transactions to prevent money-laundering activities²⁴. There are three levels of security mechanisms:

1. Technical – Examples are encryption, secure servers and security standards²⁵ among others.
2. Operational – This includes the need for a user to enter an m-PIN. Operational security also includes the upper limits on transaction amounts per transaction or total transaction volume per day per user. These security measures are similar to ATM maximum withdrawal limit and ATM PINs.
3. Corrective – Corrective measures are taken when a mobile phone or SIM is lost or stolen or if a human error leads to misdirected transactions. A user needs to report such instances so that corrective measures can be taken to secure the monetary value that could otherwise be used by an unintended recipient.

Primary m-Commerce applications

m-Banking

There is a strong potential for m-Banking in the Philippines given the lack of banks and other financial institutions in rural areas of the country. Automated Teller Machines (ATMs) are also predominantly located in urban areas. Access to internet banking is also restricted, both by limited access to the internet and, even more important, by a lack of bank accounts on the part of the poor. With over 40 million cell phone subscribers, plus access to cell phones via friends and relatives (and familiarity among most people with SMS and the passing of airtime credit), this method offers a clear advantage in terms of reach.

G-Cash has already been used as a payment channel for micro financing. Specifically, a loan application payment service, called “Text a payment” (TAP), has been piloted in a number of rural banks using this platform (Soriano & Barbin, 2007; Umali, 2007). What it does is allow microfinance clients to make microfinance loan payments using their mobile phones. Once the e-Money is in the mobile phone account, the client can text the loan payment by keying in the amount and the rural bank’s number. The transactions are made more secure with mobile PINs.

Complementary services to TAP include text-a-withdrawal, text-a-suweldo (text a salary), and text a deposit (Umali, 2007). With text a deposit, for example, clients can make a deposit into their existing savings account with a rural bank using their mobile phone. Once the e-Money is in the mobile phone account, the client can make a deposit by keying in the amount and the account number. The bank will then verify account name, number, date and time of transaction and it is then immediately credited to the deposit account. Deposit instructions are encrypted and password protected.

Another example of how this can potentially be applied pertains to

²⁴ Joey Mendoza, Globe mobile commerce group head, in a public presentation at the 3rd National E-Commerce Congress, November 18, 2004.

²⁵ Alex Ibasco, “01 eCommerce & m-Commerce – A winning Combo” presentation in CD; Presented at the 3rd National E-Commerce Congress, November 18, 2004.

the government's e-Card program under the Government Service Insurance System (GSIS). However, in order to make withdrawals and cash advances through this system, the user must have access to ATMs. Teachers comprise one of the largest groups in the bureaucracy, but the Department of Education says that only 20 per cent of all teachers have access to ATMs. As such, a former undersecretary of the Department says that G-Cash and Smart Padala may be a more workable option given its widespread use (Luz, 2007:A1&A13).

Remittance

A large number of Filipinos work abroad as migrant labourers/overseas workers. In fact, dollar remittances of the huge migrant Filipino workforce has kept the economy afloat in times of hardship, and has helped keep the peso-dollar exchange stable. As such, one of the first m-Commerce applications that were developed pertained to remittance services. Smart has SmartPadala, and Globe has Globe Quick Remit in addition to its ability for direct person-to-person money transfers.

Smart Padala is an international remittance service. This service accepts over-the-counter payments in remittance shops abroad²⁶ and informs the recipient of the remittance through the recipient's mobile phone. The remittances are then cashed through Smart Padala partner establishments²⁷ in the Philippines using Smart Money technology (Soriano & Barbin 2007). Almost US\$50 million are remitted to the Philippines through Smart Money (Wishart 2006).

Commercial and charitable transactions

An important application of m-Commerce is the ability to conduct direct person-to-person money transfers. Providing this capability to ordinary cell phone owners, can lead to more innovative transactions via SMS and this is happening already with local auctions such as eBay.ph. Some online services, such as b2bpricenow also have the capability to send money via SMS/text and may also be an avenue for generating funds for charitable organizations. One of the pioneers that offered SMS-based remittance services was Remitcard, and one of their offerings included as SMS-based donation system (Lallana, 2004). Their model required donors to purchase 'remitcards' and texting the required information to a specified number.

Prepaid loading and airtime transfers

G-Cash and Smart Money can be used to purchase mobile phone credit or airtime. Over \$18M worth of transactions per month already passes through the Smart Load system (Wishart, 2006) and airtime transfers, or loads, are equally popular with other providers.

Retail purchasing

Just as there are limitations in banking for the poor, online commerce is also limited by the lack of access among many to credit cards that are often the mode of transacting online. Some auctioneers like Bidshot and eBay.ph, and online shops like Estore Exchange, already accept payments using the mobile phone via G-Cash and Smart Money. M-Bank-

²⁶ Smart Padala is available in Australia, Brunei, Greece, Hong Kong, Italy, Japan, Spain, US, UK; Reference: Alex Ibasco, "mCommerce, eCommerce: A Winning Combination," Head of Smart Mobile Commerce; [presentation in CD]; presented at The 3rd National E-Commerce Congress, 18 November 2004.

²⁷ Smart Padala partner establishments include McDo, SeaOil and Tambunting. For full list of partners, visit http://www.smart.com.ph/SMART/Value+Added+Services/Smart+Money/Merchants/VAS_SM_Merchants.htm

ing can also be used for food deliveries, even when on the road (Wishart, 2006).

Bill payment

A recent innovation introduced by the Department of Trade and Industry was to utilize the G-Cash payment system in mobile phones to pay for the online registration of business names. This method, used in conjunction with its current online Business Name Registration System (BNRS), makes its online services transactional. Under this model, the DTI does not pay the network provider for the use of the system, but registrants would be charged P2.50 per text message as a value added transaction fee. This is on top of the registration fees for the client or corporation's business name (Domingo, 2007).

3. Conclusions and lessons for Africa

Given all the information presented on the preceding pages, the key question remains what can other developing countries, especially those in Africa, learn from the Philippine experience?

The Philippines is not the only developing country with the availability of m-Banking. In fact, there are already m-Banking services, or “pilots,” in African countries such as the Democratic Republic of the Congo (CelPay), Kenya (M-PESA), South Africa (MTN MobileBanking and WIZZIT) and Zambia (CelPay). However, the Philippines has the most well developed m-Banking system and two major, and quite different, examples in G-Cash and Smart Money.

According to Castells ‘specific conditions foster technological innovation... (and) the reproduction of such conditions is cultural and institutional, as much as economic and technological’ (2000:37). These are caveats in any attempt to export lessons learned from the Philippine experience. As such, replicating the success of SMS applications in the Philippines may require similar market conditions to those found in the Philippines.

The most important lesson from the Philippines is that it is possible to increase access to mobile phones, not only for the wealthiest in society but also for the poorer segments of the society. Crucial to the Philippines’ success in this regard, were appropriate regulatory policies that allowed for competition in the telecommunication industry, coupled with market innovations that made the technologies, such as mobile phones, more ‘affordable’ and the process of getting a line, less restrictive. *These forces are now well advanced in many countries in Africa, illustrated by the dramatic increases in mobile coverage and density in Tables 12 and 13, below. It is therefore concluded that this is not an insurmountable barrier for many of Sida’s partner countries in Africa.*

Mobile innovations in the Philippines, however, were also built on existing consumer habits among the poor and a strongly established retail network of small village convenience shops or sari-sari stores. It is from these types of stores that the poor often buy ‘tingi’ or ‘sachets’, or small increments, whether it is shampoo, fish sauce or soap. And it is through these that telecommunication companies were able to distribute their prepaid cards and, later, set-up their network of credit load centers. Practically every village in the Philippines country has a shop like this. *This traditional of small retail shops also exists in much of Africa. Indeed, the mobile explosion in Africa has largely been fuelled by prepaid sales by micro retailers.*

Another prerequisite to the Philippine experience with m-Commerce may be more difficult to replicate because of its unique intensity in the Philippines. As Smart's Napoleon Nazareno points out, "there must be an existing SMS habit" (Wishart, 2006). M-Commerce, at least in how it developed in the Philippines, was built on this very widely accepted mode of communication. SMS was initially provided for free, and only once a significant portion of subscribers were using it, were charges introduced. The key is to first develop familiarity with the SMS process, and wider acceptance among subscribers.

The African experience is somewhat different though not terribly so. There are many who argue that much of Africa has an oral communication culture and that this is a barrier to the growth of SMS and, subsequently, mobile applications. However, SMS use is often driven by economics (i.e. it is much cheaper than making a voice call) and in Africa one finds a similar low cost ratio of SMS to voice as in the Philippines. Earlier in this report it was noted that in the Philippines the ratio is 6.5 SMS for every minute of voice calling. Therefore, it is quite possible that the Philippines' SMS intensity is more geared to pricing than to cultural factors. This also suggests that the experience could be replicated in other countries with similar SMS to voice cost ratios. The largest operator in East Africa, Celtel²⁸, charges approximately USD US\$ 0.212 for one minute of voice time compared with US\$0.036 for an SMS, a ratio similar to that in the Philippines (i.e. a ratio of 5.9 to 1). *These pricing conditions have helped foster a culture of SMS in much of Africa. Therefore, the SMS culture factor in the Philippines is not considered to be an insurmountable barrier to exporting m-Commerce lessons to Africa.*

After SMS usage, the most important step towards m-Commerce in the Philippines was the prevalence of prepayment. Consumers learned how to use cards, call numbers and enter codes in order to purchase credits. They also learned how to check their credit loads and balances. This made it easier for users to understand the concept of electronic loading, once this service became offered. Since people were already literally exchanging money for loads, it made it acceptable for some to use loads as a medium of exchange. As such, G-Cash and Smart Money were eventually built on this growing use of electronic loading of credit. It is from the practice of electronic transfer of loads and credits where the potential of m-Commerce can be seen. This growing and seemingly sustainable practice was an important building block for the growth and advancement of m-Commerce in the Philippines. *Once again, similar conditions exist in Africa where prepayment is, by far, the dominant mode of mobile phone subscription.*

Technologies, such as mobile phones, tend to be introduced with long lead times followed by explosive growth due to "network externalities" (Torrero and Von Braun, 2006). In this case people subscribe to ICTs such as mobile phones because other people subscribe to them. Therefore, the number of people using similar and compatible products affects the utility derived from the consumption of these goods. Likewise, m-Commerce is affected by strong network externalities. Unless there is a relevant uptake in the number of users, its use remains irrelevant.

The key question is whether a critical mass of users can be achieved to enable network externalities to unfold, and if network coverage can be further expanded sufficiently to maximize service delivery. The challenge, therefore, is to obtain a critical mass of users on which the market

²⁸ Celtel is a major mobile network provider in Kenya, Tanzania and Uganda, a region where Sida has extensive development cooperation experience.

can build upon (Torero and Von Braun, 2006: 67 and 339). Proenza (2007) argues that the urban bias of m-Banking is largely driven by this network effect, as developing a network of merchants is easier and more profitable in the urban rather than in the rural areas. Aside from relatively lower mobile penetration, poverty is usually more concentrated in rural areas where potential customers may have a lower capability to pay for, and utilize, m-Services. *These externalities have fuelled the mobile revolution in the Philippines and are arguably driving an even more rapid spread of mobile telephony in Africa.*

The same advantage m-Banking has over traditional banking in the Philippines given the lack of financial institutions in rural areas also exists, to an even greater extent, in Africa.²⁹ As in the Philippines, ATMs are also predominantly located in urban areas in Africa and access to internet banking is restricted by limited access to the internet and by a lack of bank accounts on the part of the poor. There are now over 200 million mobile phone subscribers in Africa plus tens of millions more accessing via friends and relatives. Africa is also the fastest growing region in the world for mobile telephony and is projected to have over 300 million subscribers by 2009 (Gillet, 2007). This offers an excellent, and rapidly growing, base from which to build access to banking and other services through simple mobile applications.

Remaining barriers

However, a number of barriers remain. One of the key barriers to entry for the poor, as far as m-Commerce is concerned, is the need for proper legal identification to deposit and withdraw cash into and from its m-Currency form (applies to both G-Cash and Smart Money). This is the same barrier many faced previously in obtaining a fixed-telephone line, and is also the barrier to opening a bank account and a credit card account needed for internet transactions. The absence of these requirements was also partly why the prepaid option became easily diffused. These requirements, however, are largely related to banking regulations; especially those that are meant to prevent money laundering through the banking system. As such, these regulations may be in place in most countries. *Consequently, it may be necessary for less stringent financial regulatory regimes for small value/low volume users (the target of this report) in order to help unleash the potential of m-Commerce in both the Philippines and Africa.*

The issue of having proper identification also has implications on other applications, especially when considering SMS as a means for people to participate through elections or referenda. The idea of one vote, for one person, may require people to register their names and their phone numbers. This is a touchy issue in the Philippines, where people are wary about state control and privacy and may be an issue in other countries as well. However, having this information would be very helpful in delivering the right information for the right audience, and controlling fraudulent and illegal use of the cell phone as well as false reporting that often comes with anonymous ownership.

At present, there is a divided market in the Philippines given the existence of two popular m-Banking platforms – Smart money and G-Cash. In the future, the two should be able to exchange one currency with the other, as this would help spur the growth of m-Commerce transactions. Such a consolidation would be similar to how the telecommuni-

²⁹ In fact, the Philippines has a relatively well developed network of rural banks and associations. "Not many examples like that in Africa, hence a more dire need for financial services. We keep our money under mattresses and in pots" (Ndiwalana, 2007 – interview).

cation companies were required to interconnect. This, however, may be a regulatory question that both the Central Bank and the National Telecommunications Commission have to be involved in. Similar issues are faced in Africa where competing mobile network providers may not wish to cooperate to help m-Commerce realize its potential.

In the long run, sustaining m-Banking may also be dependent on the number of institutions, merchants and services that are willing to support/accept the currency. Unless people see the utility of m-Banking in terms of diversity of applications, its usage will not become commonplace and sustainable.

In summary, to learn from the m-Commerce experience in the Philippines, one must review the developments that led to where m-Commerce in the Philippines is today. Even though the Philippines has mobile applications such as G-Cash and Smart Money, its success is still contingent on how successfully it builds on the existing culture and practices, especially with respect to cell phone usage and, perhaps even more important, of SMS technologies.

Pushing m-Commerce further will require compliance with banking regulations; the support of retailers in terms of accepting it as a currency; the development of more content for m-Commerce beyond what is already available to encourage use and create incentives for its use and create network externalities; and possibly the integration of existing m-currencies into one acceptable form thereby making m-Commerce exchanges as common as texting. It is also important to address banking regulatory issues in order to ensure a mobile network operator has the right to engage in m-Banking or if it must be in cooperation with a bank or through the creation of a bank-like subsidiary.

The future for m-Commerce in Africa

In Tables 12 and 13, below, the absolute number of connections and mobile density are shown in Africa as a whole as well as a number of African countries of interest for Sida. Some of the more dramatic developments include a forecasted 1000 per cent increase in mobile connections in Africa between 2002 and 2008. In Tanzania, a country with a long and intense experience with Sida development cooperation, the growth of mobile telephony has been even faster – almost 1600 per cent between 2002 and 2008. The most dramatic growth has been in Nigeria – almost 7000 per cent over six years – increasing from a mobile penetration rate of 0.5 per cent in 2002 to a forecasted 34.3 per cent by the first quarter of 2008.

Table 12. Number of mobile connections in selected African countries, 2002–2008

Market	Q1 2002	Q1 2003	Q1 2004	Q1 2005	Q1 2006	Q1 2007	Q1 2008F
Africa	28,029,203	39,707,215	57,506,325	90,629,595	145,525,786	210,653,790	259,872,309
Congo (Kinshasa)	177,804	542,560	1,196,388	2,011,731	3,072,649	4,782,325	6,147,664
Ethiopia	31,385	60,000	132,000	223,683	343,016	528,242	815,874
Kenya	625,604	1,200,682	2,154,596	3,740,970	5,526,018	8,366,857	10,130,228
Mozambique	147,885	235,082	525,355	941,752	1,368,340	2,018,155	2,513,559
Nigeria	637,028	1,843,766	4,368,889	10,382,000	21,517,131	36,971,738	47,052,641
Rwanda	69,000	105,000	146,000	188,000	293,000	426,000	572,506
South Africa	10,660,847	13,738,042	17,895,000	23,169,913	32,435,534	38,680,922	42,259,804
Tanzania	455,845	854,010	1,303,765	2,252,500	3,874,175	6,223,585	8,213,914
Uganda	336,543	539,489	758,198	1,242,806	1,935,817	3,054,179	4,073,254
Zambia	123,688	191,286	360,055	592,548	1,011,469	1,787,914	2,389,747

Wireless Intelligence 11/6/2007 F = forecast data

Table 13. Mobile market penetration in selected African countries, 2002–2008

Market	Q1 2002	Q1 2003	Q1 2004	Q1 2005	Q1 2006	Q1 2007	Q1 2008
Africa	3.4%	4.8%	6.7%	10.4%	16.3%	23.1%	27.9%
Congo (DRC)	0.3%	1.0%	2.2%	3.5%	5.3%	8.0%	10.0%
Ethiopia	0.1%	0.1%	0.2%	0.3%	0.5%	0.7%	1.0%
Kenya	2.0%	3.8%	6.7%	11.5%	16.8%	25.1%	30.0%
Mozambique	0.8%	1.3%	2.8%	4.9%	7.0%	10.2%	12.5%
Nigeria	0.5%	1.5%	3.5%	8.1%	16.4%	27.6%	34.3%
Rwanda	0.9%	1.3%	1.7%	2.2%	3.4%	4.8%	6.4%
South Africa	23.5%	29.7%	37.9%	48.0%	65.9%	77.3%	83.3%
Tanzania	1.3%	2.3%	3.5%	6.0%	10.1%	15.9%	20.6%
Uganda	1.4%	2.1%	2.9%	4.6%	6.9%	10.6%	13.6%
Zambia	1.2%	1.8%	3.3%	5.4%	9.1%	16.0%	21.1%

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As seen above, the growth of mobile telephony in Africa has been breathtaking and far faster than the most optimistic of projections just a few years ago. Will this growth continue? The GSMA believes that the cost of mobile networks and devices will continue to fall, extending mobile services even to people on very low incomes. And, as noted earlier, Wireless Intelligence predicts the number of mobile subscriptions in Africa will grow by over 50 per cent – from 200 million to over 300 million – over the next two years.

Many developing countries have established universal service funds, which levy contributions from mobile and fixed operators, largely to subsidize the rollout of fixed-line telecommunications networks in rural areas. The GSMA recommends that governments should regard market forces as the primary means to extend access and connections to mobile communications, and that the US\$4.4 billion accrued by universal service funds should be invested in mobile coverage rollout. They further conclude that universal service funds should be phased out over time and that universal service funds should be spent on the lowest cost access

technology, typically mobile networks, as the most efficient way to extend access to telecommunications (GSMA, 2007).

As African mobile coverage and density grow, it is important to note that mobile phone networks in the Philippines have a very robust capacity for SMS traffic. Indeed, telecommunications giant Ericsson uses the Philippines as a test case to optimize networks to handle high volumes of SMS. Therefore, mobile network operators in Africa intending to introduce m-Banking and other SMS-inducing services need to ensure their networks reliably support high volumes of SMS traffic.

There is another factor that makes much of Sub-Saharan Africa, and especially East Africa, ripe for the expansion of simple mobile applications. The factor is a lack of internet bandwidth. Specifically, East Africa is one of the few populated regions of the world without access to the global fibre pipeline (i.e. internet access is not through ultra-broadband terrestrial cable but instead through expensive, limited bandwidth satellite receiving stations). This situation led Engvall and Hesselmark to conclude that “ICT services are not likely to take off in Sub-Saharan Africa unless there is an ample supply of bandwidth at low costs (Engvall and Hesselmark, 2007). In a sense, this lack of internet bandwidth makes the region even more in need of simple (i.e. low bandwidth) mobile applications than the Philippines, which is connected to the global fibre pipeline via undersea cables.

Sometimes, a real life example is the best way to illustrate the benefits of a service. The article below, published in the *Economist* magazine in October 2006, makes the benefits of emerging m-Banking services in Africa clear.

Phoney Finance

Life is now easier for Andile Mbatha, who owns a hair salon in Soweto. Gone are his days of trekking to his bank, which could take two hours by minibus, to send money to relatives. Nor does he keep piles of cash in his salon any more. Last year, he opened a bank account with Wizzit, an innovative provider of financial services. He now sends money to his sister in Cape Town whenever he wants, from wherever he wants, using a simple menu on his mobile phone. Half his customers no longer pay cash for their haircuts. They use their phones to move money from their accounts to his, in a few seconds. “This has taken out a lot of stress,” says Mr Mbatha.

South Africa is not the first place to use mobile-phone banking: countries such as Japan, South Korea and the Philippines have had it for a while. But the potential is probably bigger in the developing world, and in countries in which migrants remit money to their families in relatively poor homelands.

In most of Africa, meanwhile, only a fraction of people have bank accounts—but there is huge demand for cheap and convenient ways to send money and buy prepaid services such as airtime. Many Africans, having skipped landlines and jumped to mobiles, already use prepaid airtime as a way of transferring money (Economist, 2006).

An African pioneer?

Wizzit is a South African-based company targeting customers without bank accounts and has been offering cell phone-based financial services since 2005. A recent CGAP report examined Wizzit’s m-Banking services in South Africa and concluded that low-income people value the service and give it high ratings for convenience, cost and security. It was further found that although the lowest income groups do not typically

use the service, m-Banking is opening banking to the poor and reducing costs and saving time for its users (CGAP, 2006).

Vodafone, which is investing heavily in Africa, is partnering with Kenyan affiliate Safaricom and the Commercial Bank of Africa to launch M-PESA, a mobile financial service that allows users to send and receive cash and perform other transactions. M-PESA was launched in Kenya in early 2007, as the first m-Banking service in East Africa, and boasted over 100,000 users after three months. The service is open for those without bank accounts or bankcards and there are plans to launch M-PESA in Tanzania soon. Through PESA it will be possible to:

- Deposit and withdraw money;
- Transfer money (send) to another M-PESA customer or to someone who is not an M-PESA customer (they do not even need to be a Safaricom customer);
- Buy Safaricom prepaid airtime; and
- Manage M-PESA accounts (e.g. show balance, call support, change PIN, language, etc.). (Safaricom, 2007)

In June 2007 there were 430 M-PESA agents where customers could buy and sell of M-PESA e-Money. Agents are Safaricom dealers, operating one or more outlets around Kenya or other retailers with a substantial distribution network such as petrol stations. The agent's key tasks are to help register M-PESA customers; assist with deposit of cash into M-PESA accounts; process cash withdrawals for registered M-PESA customers; and process cash withdrawals for those who are not registered M-PESA customers. Registration for M-PESA is free at any M-PESA with a Safaricom SIM card, a mobile telephone and identification (Safaricom, 2007). In this regard, registration is more cumbersome than for G-Cash in the Philippines. To date, there are no regulatory hurdles for this type of service in Kenya but Safaricom is working with the authorities to ensure they stay abreast of regulatory developments.

In infoDev's report (2006a) on micro-payment systems a South African m-Commerce company estimated that the introduction of m-Banking services could be profitable for mobile network operators with as few as 25,000 users. The report concluded that "it is not only technically feasible and profitable to deploy financial services over mobile networks, but there is a significant and growing demand. In fact, m-Commerce may address a major service gap in developing countries that is critical to their social and economic development" (infoDev, 2006a).

It is possible, even likely, that hundreds of millions of people in developing countries will have access to bank services through mobile phones by 2010. The biggest challenge may be to ensure that the positive effects of these new services are maximized. Will m-Commerce merely benefit the "haves," or will those currently outside the economy be brought inside through the mobile telephony revolution we are witnessing in the first years of the 21st century?

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Al Alegre, Executive Director, Foundation for Media Alternatives, Philippines.

Erwin Alampay, National College of Public Administration and Governance/ICT4D.PH, Philippines.

Karoline Beronius, Swedish Program for ICT in Developing Regions (SPIDER), Sweden.

Daan Boom, Principal KM/ICT4D Specialist, Asian Development Bank, Philippines.

Inier Loyola Candor, B2BpriceNow, Philippines.

Christopher Coward, Director, Center for Internet Studies, University of Washington, United States.

Renato B. Garcia, President, Philippines Electronics and Telecommunications Federation, Philippines.

Anatoly D.C. Gusto, USAID, MABS, Philippines.

Francisco Magno, Institute of Governance, De la Salle University, Manila, Philippines.

Ali Ndiwalana, Directorate for ICT Support, Makerere University,
Kampala, Uganda.

Bengt Oberger, ICT for Development Secretariat, Sida, Sweden.

John V. Owens, USAID, MABS, Philippines.

Mikko Perez, Veritas Mobile Systems, Philippines.

Robert Sagun PRSD, Philippines.

Sec. Ramon Sales, Commission on ICT, Philippines.

Tim de Rivera, Commission on ICT, Philippines.

Per Einar Tröften, ICT for Development Secretariat, Sida, Sweden.

Joel Umali, EMERGE project, Philippines.

JoJo Vega, Globe X-Change, Philippines.

Appendix 1

Terms of Reference

ICT for Development Secretariat

Consultancy services

Planning a Sida mission to the Philippines

Preparation of a report on the innovative use of mobile telephony in the Philippines and potential applications in Africa

Background

The Swedish International Development and Cooperation Agency (Sida) supports the integration of Information and Communications Technology (ICT) in developing countries in order to improve communications, the exchange of information and to facilitate economic development. Sida's policy is outlined in the document "Strategy and Action Plan for ICT in Development Cooperation" www.sida.se/sida/jsp/sida.jsp?d=118&a=3404&language=en_US.

Access to financial and other services in many developing countries is limited, especially in rural and remote areas. Consequently, many do not have access to banking services and are forced to make all payments in cash, which is less secure and flexible than electronic payment forms. However, in the Philippines millions are able to transfer funds via mobile networks.

A recent report commissioned by the Information for Development Program (infoDev) in association with the International Finance Corporation (IFC) and the GSM Association finds that the use of mobile communications in developing countries has the potential to bring a range of financial services to previously excluded groups. The report examines the use of mobiles for payments in the Philippines, known for its intensive and widespread use of SMS³⁰, and concludes that mobile-enabled financial services, or *m-Banking*, can address a major service gap in developing countries that is critical to social and economic development (InfoDev, 2006a). The experience in the Philippines demonstrates that m-Banking brings advantages to all stakeholders:

- *For users*: an opportunity to become engaged in the formal banking sector, facilitate and reduce the costs of remittances, and enable financial transactions without the costs and risks associated with the use of cash, including theft and travel to pay in person;
- *For operators*: an increase in SMS revenues and a drop in customer churn;

³⁰ Short Message Service permits the sending of messages between mobile phones and/or other devices. The term text messaging is common in English-speaking countries and the Philippines, while most other countries use the term SMS. SMS can also be used to interact with automated systems to order products and services, participate in contests, access information and/or conduct financial transactions.

- *For consumers:* m-commerce is more secure and flexible than cash, allowing consumers to make payments remotely;
- *For banks:* an increase in customer reach and added cash float;
- *For retailers:* added business opportunities through the sale of prepaid account credits;
- *For micro-finance institutions:* the ability to advance funds into remote areas and have regular repayments that do not inconvenience the user; and
- *For service industries and utilities:* the ability to get payments electronically from a significant portion of the population (InfoDev, 2006a).

The report outlined in this Terms of Reference will investigate if there are *other* mobile services that may have a similar positive impact on marginalized groups.

Given the positive experience the Philippines has had extending, via mobile telephony, financial to people traditionally excluded there is a need to identify the underlining factors behind, and current reality of, *m-Banking* and similar services in the country. Sida is especially interested in the possibilities that the services provided by mobile telephony could contribute to efforts to alleviate poverty. Therefore, Sida is awarding a contract to further investigate the experience vis-à-vis the innovative use of mobile telephony in the Philippines with a view to exporting lessons learned and best practices to other developing countries.

Scope of services

There are two main components to the assignment: 1) the planning of a mission involving Sida's ICT secretariat to the Philippines to investigate the use of mobile applications in innovative ways that facilitate economic development and can alleviate poverty; and 2) fact finding and research to support publishing a report detailing lessons learned and best practices regarding the Philippines' innovative use of mobile telephony. The mission will help Sida staff identify the most interesting developments in the mobile sector and will result in a series of meetings with relevant actors and stakeholders. The end goal is to identify which applications are most relevant in the purpose in the reaching the poor and helping in poverty elimination. Ultimately it is hoped these applications can be developed for further distribution to local providers in Sida partner countries, with a focus on Africa.

It will be important to meet with relevant mobile actors in the country such as government ministries/agencies, telecommunication companies (e.g. Ericsson, Nokia as well as service providers in the Philippines), key business users of the services (e.g. banks offering m-Banking) and end-users (e.g. m-Banking services for people traditionally excluded from the formal banking sector and for expatriate remissions, market pricing for farmers, and other services from both private- and public-sector actors)? An interesting question is if the innovative use of mobile telephony in the Philippines emerged as a result of market mechanisms or because of bottom-up adoption by consumers rather than through donor-supported measures.

The consultant will prepare a mission to the Philippines for Sida staff and produce a report on the innovative use of text messaging and other simple applications in the Philippines, especially regarding potential application for economic development and poverty reduction in Sida partner countries. The report will include:

- An overview of the state of simple mobile applications in the Philippines;
- A review of the development of mobile applications in the country as a tool for economic development and poverty reduction; and
- An analysis of the “exportability” of lessons learned from the Philippines vis-à-vis the use of mobile applications to spur economic development and empower the poor, with a particular focus on Africa.

The *descriptive* part of the final report should provide information on the current state of mobile telecommunications in the Philippines and forecasted changes and developments in the near term. Names of key persons and other relevant institutional data (size, ownership etc.) should be listed in the reports. Key data should be gathered and sources should be listed.

The *analysis* should address the following:

- Major trends and initiatives in the country regarding the use of mobile telephony;
- Main obstacles for increased use of mobile telephony; and
- Main opportunities to increase the speed/integration of mobile telephony and services such as m-Banking and other relevant applications.

The analytical part could serve as a first step to identify major areas of interest regarding future integration of ICT in the Swedish development cooperation. The analysis should include a discussion of advantages and risks of supporting mobile based implementation, mainly from the perspectives of poverty reduction.

Methodology

Preparation of the mission and the report should be made in close cooperation with stakeholders in the Philippines. A local sub-contractor in Manila should be used to facilitate contact with local actors and stakeholders as well as facilitate access to information. Close cooperation with both Sida and SPIDER³¹ should be maintained to ensure relevance and contact with SPIDER’s project, “Leveraging mobile platform technology to address the information and development needs of marginalized communities (rural and urban poor).” The goal of this project is to support development of three *SMS and/or GPRS*³² applications that contribute to the development of marginalized communities by: 1) determining which applications are most relevant in the purpose of reaching the poor and assisting with poverty reduction; 2) developing these applications; and 3) implementing applications with the assistance of local providers in Africa.

Data for the report will be gathered via organizations, internet search, through the locally engaged consultant and while on the field visit in the Philippines, which should span approximately ten days.

Reporting and invoicing

The following will be produced in English by the consultant and be delivered to Sida in electronic format:

³¹ SPIDER – the Swedish Program for ICT in Developing Regions – is a centre for ICT in developing countries funded by Sida and hosted by the Royal Institute of Technology in Stockholm.

³² General Packet Radio Services (GPRS) is a mobile data service for users of GSM and IS-136 mobile phones. GPRS data transfer is typically charged per megabyte of transferred data. GPRS can be utilized for services such as WAP access, SMS, MMS as well as for email, web access and, most recently, low cost voice over IP.

1. a detailed plan for a one-week Sida mission to the Philippines in February (April).
2. A draft version of the report by April 30 (June 30), 2007.
3. A final version of the report by May 31 (July 31), 2007.

The consultant must also provide Sida staff with regular progress reports and a final verbal report summarizing main findings and conclusions.

A first invoice accounting for fifty per cent (50%) of the total budget will be submitted upon completion of the consultant's mission to the Philippines. The final invoice will be submitted upon successful completion and submission of the final report.

Appendix 2

Comparison of mobile services in the Philippines

Service Classification	Sun	Smart	Globe
BASIC	<p>Postpaid Plan 350 (1 phone for 350 or 3 phones for 990, unlimited call and text)</p> <p>Prepaid SIMs:</p> <p>Super Value SIM (P59 w/ 2 day 24/7 unlimited call and text, 10msgs free to other networks)</p> <p>Power SIM (P99, w/ 4 days unlimited call and text, 15 msgs to other networks)</p> <p>Supreme SIM (P150, w/ 7 days unlimited call and text, 30 msgs free to other networks)</p>	<p>Smart Gold and Smart Infinity (Postpaid)</p> <p>Smart Buddy (prepaid) P10/3 min calls</p> <p>Smart Kid (for kids – post and pre paid)</p> <p>Addict Mobile (Special mobile for teenagers)</p> <p>Talk n Text – for low income subscribers</p>	<p>G-Plan and Globe Platinum (Postpaid)</p> <p>G-Flex (consumable postpaid credits)</p> <p>Globe prepaid (P10/3 min)</p> <p>Globe Kapamilya prepaid (ABS-CBN exclusive SIM card)</p> <p>Globe Gizmo (for kids-post and pre paid)</p> <p>Touch Mobile (TM) – for low income subscribers</p>
CREDIT PURCHASE/ TRANSFER	<p>Sun Express Load</p> <p>(P15, unlimited text/10 min free call within network)</p> <p>Citibank Reload (load credit to Sun mobile phones using Citibank)</p>	<p>Prepaid Cards (P300, P500)</p> <p>Smart Load (electronic transfer of airtime via SMS)</p> <p>– Smart had 50,000 outlets when Smart Load was launched in May 2003, this jumped to 500,000 retail stores/agents</p> <p>– Smart Load prices were broken down into smaller denominations (P20, P60, P115, P200)</p> <p>Smart Pasa Load from P2 and above</p> <p>Online credit loading BPI, etc.</p>	<p>Prepaid Cards (P100, P300, P500, P1000)</p> <p>Globe Autoload Max Load money from P10 (\$0.2) for TM, P25 for Globe up to P150 from globe/TM outlets and sari sari stores</p> <p>– P1,460 (\$29.20) cost of AutoloadMax retailer kit</p> <p>AutoloadMax Corporate Edition A web portal that allows corporate clients to top-up their employees; it allows scheduled top-ups based on user's specification.</p> <p>Share a Load from P2 and above, service charge of P1 per text; also (possible for Overseas Filipinos to send credit to subscribers in the Philippines (through the Bridge Mobile Alliance)</p> <p>Ask a Load for pre and post paid subscribers thru a txt message</p> <p>Mobile Call and Text Collect. Allows texting or calling without credit, other party pays</p> <p>Text Bak Mo, Libre Ko. Subscriber pays for other party to text back</p>

Service Classification	Sun	Smart	Globe
SPECIAL PROMOTIONS	<p>24/7 Call and texts unlimited for 250php a month and 100php for 10 days (Oct 04)</p> <p>Call and text unlimited for 350php a month and 100php a week (March 05)</p> <p>Texts unlimited for 150php a month and 50php a week</p> <p>Free voice calls included in texts unlimited cards for 4 hours and 1 hour respectively (Feb 06)</p> <p>Increased the price of their texts unlimited cards to 450 and 150 respectively (Mar 06)</p> <p>Introduced the 100php call and text unlimited for 5 days (Sept 06)</p> <p>25Php 1 day call and text unlimited (Feb 07)</p> <p>P15 text unlimited/day with 10 min free voice calls (May 07)</p>	<p>Pure Text (2002)</p> <p>Smart Lahat Text (P15 /day; P30/3 days; P60/4 days;) (present)</p>	<p>Unlitext 80 (5 days unlimited Globe to Globe dayshift texting)</p> <p>Unlitext all day 20 – P20/day; Unlitext 40 – P40/2 days unlimited texting</p> <p>Unlitext Nite – P10 UNlitext Day – P15</p> <p>P0.10 per second call charge</p> <p>Globe Super Sulit and TM Power Piso initiatives provided a suite of voice and text offers for Globe and TM subscribers, including per-second charging promo for local and international calls, discounted IDD call and text rates to selected destination countries under the Super Sulit Tipid IDD program.</p>
M-COMMERCE	<p>Citibank Reload (load credit to Sun mobile phones using Citibank)</p>	<p>Smart Money (Dec 2000) A cashless base transaction in a reloadable cash card linked to the MasterCard network, for bill payment, etc.</p> <p>Smart Padala (Cash remittance service via text, from a sender abroad to the mobile phone of a beneficiary here in Philippines)</p>	<p>GCash, an SMS-based mobile commerce service allows for convenient person-to-person money transfers and remittances, microfinance applications, bill payments, and purchase of goods and services.</p> <p>G-Pass allows MRT commuters to pay for their fare with a simple tap of their RFID (radio frequency ID) chip on the MRT turnstile. Value reloads can be made anytime and anywhere via GCash.</p> <p>Globe Quick Remit and Load service allows our overseas workers to send cash and load straight to family and friends. Available in Hong Kong, Singapore, Taiwan, Japan, Saipan, Guam, USA and Canada.</p> <p>Mobile banking for HSBC and BPI – balance inquiry via SMS</p> <p>Banco de Oro Cash Cards, text to send cash to a loved one.</p>
PUBLIC PAYPHONES		<p>SmarTalk (Payphone with Texts features from smart)</p>	<p>TM's Barangay Cellphone service – a phone kit that enables barangay operators to rent it out to their neighbours as a public phone.</p>

Service Classification	Sun	Smart	Globe
INTERNET		<p>Smart Bro (wireless fidelity service, delivering speeds of 384 kbps – 512 kbps)</p> <p>Smart 3G (video calls, high-speed internet browsing and multi-media streaming)</p> <p>Other Internet services are provided by mother company, the Philippine Long Distance Telephone Company (PLDT)</p>	<p>Globe Mobile Broadband 3G with HSDPA (High Speed Downlink Packet Access) service which allows for high-speed internet browsing and multi-media streaming.</p> <p>Visibility plans offer unlimited mobile internet access via 3G with HSDPA, EDGE and GPRS, as well as unlimited dial-up and WiFi access to subscribers through over 520 WiZ hotspots nationwide.</p> <p>Globelines Broadband Budget Bundles, a landline service with unlimited broadband access of up to 384 kbps for only P995/month.</p> <p>GlobeQUEST VoBB (voice over broadband) a voice service that allows subscribers to take advantage of the VoIP technology via broadband connection.</p> <p>Globelines Postpaid Plus is a landline service bundled with unlimited dial-up internet access and toll-free NDD calls to any Globelines phone anywhere in the country, all for a fixed monthly service fee.</p>

Service Classification	Sun	Smart	Globe
VALUE ADDED SERVICES	Sun The Mall – access an array of infotainment services (music, movies, clips, sports, entertainment, etc)	Smart Zed and Smart Buddy Promos (multi-platform infotainment products and services, inc games, messaging and stock prices)	MyGlobe (multiplatform infotainment products and services)
	Sun iMessenger (Sun iM) is a service of Sun Cellular subscribers that allows sending instant messages to Yahoo!, MSN, AOL and ICQ buddies. All you need is your Sun cellphone (postpaid or prepaid) to start chatting with your online buddies.	Smart iChat. Chatting service	MyGlobe IMEVRYWHR – an instant messaging service also offering unlimited chatting, voice messaging and unlimited photo sending for fixed daily, weekly or monthly fee.
	Friendster Mobile enables one to connect with their Friendster network through your Sun phones via the 2276	Smart Moblabber Philippines is a social networking service for both web and mobile phone interaction	Globe Bida Card- an electronic card that rewards loyal Globe and TM subscribers with discounts and promotional items and services at almost 200 establishments.
	Sun My Vault – a mobile value added service that securely stores mobile data such as Contacts and Text Messages	LoadStar (2007) (bonus stars/ points are earned upon purchase of credit/load)	
		Smart Amazing Phone (all in one gadget – movie messaging, internet surfing, media player, camera, SD/MMC slot, voice recorder, tri band)	Download logos, icons, ring tones, ringback tunes, picture messages, etc
		Download logos, icons, ring tones, ringback tunes, picture messages, etc	Download logos, icons, ring tones, ringback tunes, picture messages, etc
		Games: Smart Zed allows downloading of unlimited Java games (adventure, adult, brain teaser, fun, logic, racing sports, arcade, classics, strategy). A player can also invite a fellow subscriber for a 2 player game	Games MyGlobe Gamezone (2992)– downloading of limitless Java games (Mind Games, Action Adventure, movie games, puzzle, quiz, role playing, sports racing Fever, etc) via SMS and WAP; sending of games as gifts to friends; receipt of personal alerts for new games; payment of games
		Ateneo/La Salle MyAlumni. Customized SIM card with uni logos, alumni updates	Globe Campus Bulletin. What's in and around campuses and universities
		Smart Buddy Cinema Club – get movie updates, screening schedules, movie reviews	Movies. Downloading of movie schedules. Ticket reservations (Ayala cinemas; video streaming of movie clips)
		Smart FANATEXT (4627). Text celebrities	myGlobe G-TV
	Smart STARCALLER (3262). Celebrities can call a subscriber	TV viewing on Globe Handyphone! ABS-CBN, ANCM GMA shows anywhere	
	Smart CMe (8336) Global Video Community. Find a friend and broadcast yourself via 3G mobile phone; allows Speed Dating	myGlobe Video Celebrity Greeting	
	Smart Mobile Blog	Send the fun video greeting to friends using celebrities	
Other OFW Services		Smart Pinoy (OFW Services) – Smart IDD (40c per minute everywhere in the world) – International Text – Smart Padala	Kababayan IDD phone cards in selected countries such as Japan and Hong Kong to provide discounted international call rates to Globe and TM subscribers.

Service Classification	Sun	Smart	Globe
Corporate/Business Services	Plan 999 (3 phones for P999 with unlimited call and text within network)	<p>Smart Mobile Eye. Allows entrepreneurs to watch over their business via SMS</p> <p>Smart Link (calling through Smart Satellite receivers)</p> <p>Smart Blackberry and Blackberry Corporate Solutions</p> <p>Smart Bro Enterprise a total internet package designed to assist start-ups, allowing entrepreneurs to run their company with a relevant bundle of services.</p>	<p>Globe Broadband Webeye offers a remote web-based solution that allows entrepreneurs to monitor businesses in other locations via internet.</p> <p>GlobeQUEST Store Express enables exchange of sales and inventory information between a retail company's headquarters and its branches. It also allows for the hosting of other voice, video and point-of sale applications.</p> <p>Globe Biz Starter Kit a total internet package designed to assist start-ups, allowing entrepreneurs to run their company with a relevant bundle of services.</p> <p>Employee Line Plus (employees with a prepaid SIM card with a set "load" by the company via AutoloadMAX).</p> <p>Mobile IDD and PABX is a PABX system with a wireless GSM PABX router which Globe connects to the company's existing phone system. By dialling an access number, any employee has option to make discounted IDD or Globe calls at preferred rates.</p> <p>Mobile Deskphone is a telephone unit which has the functionality of a cell phone. Enables field offices in remote areas to stay connected to the head office and still enjoy special IDD and cost efficient rates through the business loop.</p> <p>Globe Energy Management Solutions (GEMS) allows the monitoring of expenses on an hourly, weekly, monthly, or yearly basis through reports that can be sent using email or SMS.</p> <p>Message Connect (provides employees real-time access to the company's various databases via SMS).</p> <p>MLaunchPad allows the marketer to instantly create, define, conceptualize, implement and monitor his own programs with the use of a client web user interface accessible from office PC.</p>

Sources:

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Halving poverty by 2015 is one of the greatest challenges of our time, requiring cooperation and sustainability. The partner countries are responsible for their own development. Sida provides resources and develops knowledge and expertise, making the world a richer place.



SWEDISH INTERNATIONAL
DEVELOPMENT COOPERATION AGENCY

SE-105 25 Stockholm Sweden
Phone: +46 (0)8 698 50 00
Fax: +46 (0)8 20 88 64
sida@sida.se, www.sida.se