

# Aspects of Mobile Phone Usage for Socioeconomic Development in Papua New Guinea



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## Introduction

Little data is available on mobile phone usage in Papua New Guinea (PNG). Up to 2007, under the government-owned Telikom monopoly, communities within Papua New Guinea were inaccessible due to limitations in communications connectivity (Mitchel 2008). Telikom supplied fixed phone services while its fully owned subsidiary company, B-mobile, provided mobile services. Telikom served only 64,000 fixed phone subscribers while B-mobile garnered a low 60,000 mobile phone users against the total population of seven million (O'ome 2010). At that time, the combined penetration rate of less than 2 per cent was lower than the indicators of many comparable developing countries.

Following the liberalisation of the mobile phone market in the second half of 2007, there has been an expansion in communication signal coverage across PNG enabling connectivity to many people. The mobile phone penetration rate now stands at approximately 41 per cent (ITU 2014), marking a substantial change in the communications landscape. Currently, mobile phone services in PNG are supplied by three providers — Citifone, B-mobile and Digicel. Citifone and B-mobile, owned by Telikom, are mostly limited to urban centres and only have about 200 towers, while Digicel has a much broader reach with some 1,100 towers across the country. Limitations experienced during the Telikom monopoly incurred certain business and opportunity costs that have now been largely lifted with market deregulation (Sowei 2009). Choice in price and value has improved since the entry of Digicel, enabling the populace access and the opportunity to harness communication services; however, the company now operates largely as a monopoly, effectively limiting actual choice.

This discussion paper outlines results of a survey that investigated aspects of mobile phone

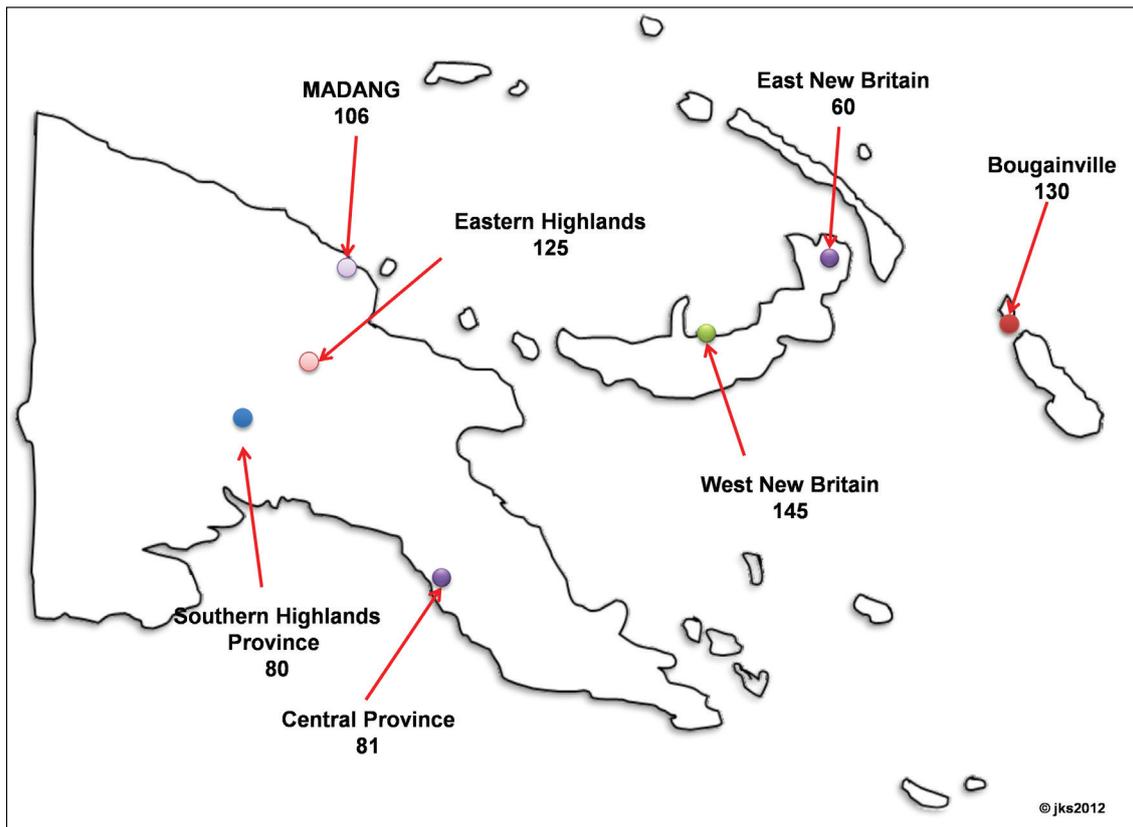
usage associated with healthcare, school systems and income-earning activities in PNG. The survey set out to investigate these aspects of mobile phone usage by interviewing 727 mobile phone users across seven provinces in PNG. Importantly, the survey found that mobile phones have beneficial uses for socioeconomic development in PNG. It found that mobile phones play supportive roles in healthcare and school systems. It also found that mobile phones are enablers of business as well as direct revenue earners in their own right via the sale of call credits and other associated accessories. However, there were also perceptions of adverse aspects of mobile phone usage as people grappled with this pervasive device. This paper ends by calling for policy and regulatory safeguards in the information and communications technology (ICT) sector to promote healthy growth and the continuance of fair service tariffs.

## Survey Area and Research Methodology

Survey sampling sites were selected to represent the diversity of geography and culture in PNG. The coastal regions (Momase and Papua) were represented by one village (Gaire) in Central Province and two villages (Sarang and Merchiar) in Madang Province. The highlands region was represented by two villages (Gepahina and 'black Kona') in the Eastern Highlands Province, one village (Kuta) in Western Highlands Province and another (Kipa) in Southern Highlands Province. Samples from both Kuta and Kipa villages were counted under Southern Highlands as that was the interview location. To represent the islands region, two villages (Poposoko and Tohatsi) on Buka Island of Bougainville, settlements around the oil palm plantations in West New Britain Province and a village in East New Britain



placeholder QR code



**Figure 1: Map showing location of data collection sites and number of respondents.**

Province were included. The number of participants from each of the sampled provinces is identified on Figure 1.

The survey employed mixed methods combining quantitative and qualitative data that were collected using convenience sampling methods. Convenience sampling was used because of the challenges of transportation across PNG — it allowed people who were available and willing to be interviewed to be included in the sample. The interviews were conducted in villages, roadside market places and rural community centres.

Qualitative data in this survey came from closed questions and in-depth interviews that were transcribed and themes then identified. The interviewees included community members and spokespeople, local trade store operators, and other willing community members who were selected on the basis of their awareness and ability of self-expression. These interviewees were selected from sampled participants across the seven provinces.

The themes and sub-themes were identified from responses supplied by interviewees to the following questions:

- Talk about some influences brought about by the introduction and availability of mobile phones in your community.
- Share your experiences on how mobile phones have changed ways of living and doing things in your community.
- Talk about ways your fellow community members responded to the arrival of mobile phones.
- Kindly share your observations and experiences concerning the things that people or your community members use their mobile phones for.

Regarding quantitative data, respondents indicated their response to carefully formulated statements expressing a particular attitude towards and experiences with mobile phones. The collected responses were then coded and entered into statistical package software and analysed for identified

attitudes. The identified attitudes were triangulated with the themes from the qualitative strand.

### Themes and Perceptions

The interviews yielded three main themes of discussion — school, healthcare and business activity — and several associated sub-themes. The triangulation of the qualitative and quantitative data produced the following major themes:

1. Mobile phone use in school systems (mode of communication, part of school equipment).
2. Communications and changing language use.
3. Mobile phone use in healthcare systems (means of collaboration, support logistics, medium for sourcing medical drugs).
4. Business activity (direct income earner through sales of call-credits and other accessories; business enabler including use of mobile phones in logistics for organising, transporting and monitoring fresh produce from highland areas to urban markets; m-banking such as checking account balances and transferring funds between accounts).
5. Adverse aspects of mobile phone usage (relating to uses which are deemed incongruent with customary norms).

The remainder of the paper discusses the main themes emerging from the analysis.

#### 1. School Systems

The survey found that, within the schooling system, mobile phones have become the preferred mode of communication between teachers, students and parents. In recognition of cost differences between voice- and SMS (Short Message Service)-based communication in PNG, there have been notable increases in the use of texting. As one respondent stated:

The advent of mobile phones with the SMS option has enabled a cheaper mode of communication for students. While parents and teachers may afford to use phone calls, students prefer SMS messaging as it is economical both in terms of costs and the use of words ... thanks to mobile phones ... students inquire about timing of rescheduled

classes and even negotiate due dates for projects and assignments ... Others exchange SMS messages concerning information on learning materials. (#1001)

Mobile phones also facilitate internet access for the purposes of information search and knowledge building, while the phones themselves serve as useful study assistance tools, as attested by the following respondent.

Students always want mobile phones ... it is part of their school utensils ... important for knowledge building ... useful features include calculator functions, alarm and clock, music, calendar and diary and an internet portal. (# 1137)

#### 2. Communications and Changing Language Use

The availability and easy accessibility of mobile phones in many parts of PNG has seen them grow increasingly popular. Literature on other markets argues that this popularity is due mainly to their portability and mobility (Greengard 2008). In PNG's case, attributes of portability and mobility have associated conveniences, such as saving travel time. Survey respondents identified that mobile phone usages have freed citizens from previous communication limitations. As the following respondent noted:

Before the arrival of mobile phones, people always have problems in communicating with relatives or friends who are far away from them. But after the introduction of mobile phones, everything changed for better, it is positive change and development ... it's good now. For instance now you don't have to waste money on transport to travel to town, just to visit the post office or use the public phone to contact relatives and friends, or loved ones. With the new mobile phones, just call from where you are. (#1140)

This respondent recalls the challenges of maintaining contact between people in the 'pre-mobile-phone' era. While noting the changes, the respondent also appreciates the presence of mobile phones as a sign of positive development. The comment further asserts that mobile phones free peo-

ple whereby they can now establish contact for all manner of purposes without the need to travel. There are similarities between this assertion and the findings of another study that concluded that mobile phones enabled a multiplicity of connectivity in rural areas that used to be isolated, extending boundaries and changing the experience of time and space (Tenhunen 2008; Watson 2011).

Aspects of mobile phone usage brought about many changes ... it is the same for the community where communication has changed in a big way ... mobile phones are so popular with higher diffusion levels compared to other technologies ... although we had no other means of modern communications ... in the past phones were only in town government and business offices ... now the phones are in the villages and it is good development. (#1531)

The convenience of using mobile phones anywhere and anytime within the signal coverage area changed communication experiences for citizens. Previous difficulties, where people were isolated due to lack of communications have been overcome by the availability of mobile phones.

It sets the alarm for me ... and I can keep to my schedules using the clock options ... I maintain lists of regularly contacted persons with their phone numbers ... this allows me to call them in the event that I need their help. Due to its importance, mobile phone forms part of my toolkit which supports me in the performance of my job. (#1007)

This response asserts that mobile phones efficiently support mundane but necessary chores like keeping time and being on schedule. There is also an aspect of collaboration and networking with other people through mobile phones whilst in one's line of duty. Similar experiences are documented in African developing countries demonstrating the versatility of mobile phones in communications, business, work, family and friends, or recreation and entertainment (Donner 2005; Watson 2014).

#### Internet Access

Mobile phones are gradually becoming an indispensable internet portal and so form a convenient

means of making instantaneous contact, traversing temporal and geographical boundaries. This study found that in the absence of other ICT services in PNG, mobile phones provide an alternate means through which internet access is enjoyed.

The survey found internet use by some citizens mainly involved accessing blogs to participate in online forum discussions. Others accessed the internet via mobile phones to use and enjoy public domain email services, such as google mail or gmail. Two respondents talked about using mobile phones to access the internet to check for cheaper used cars from online dealers to whom they then sent email enquiries expressing their interest in buying.

During the telecommunications monopoly era internet penetration was only 2 per cent, and the predominant access medium was conventional fixed landlines. The survey found that 17 per cent of respondents used mobile phones to access and use the internet. This clearly suggests that internet access and use have increased in PNG, accompanying the higher diffusion levels of mobile phones — in fact, these figures are substantially higher than those reported by the World Bank and the International Telecommunications Union, which put internet use per 100 individuals at around 7 per cent (ITU 2014; World Bank 2014).

#### Entertainment

Papua New Guineans are increasingly using mobile phones to enjoy radio programs, take and send photos and videos, or to download music and even watch television. This is considered a form of entertainment because it concerns the use of mobile phones to enjoy a variety of multimedia services. In PNG this is true as mobile phones are the most pervasive multi-purpose digital device. Seventeen per cent of the respondents in the survey expressed similar views identifying that they used mobile phones for such forms of entertainment.

#### Changing Language Use

Texting or SMS communication, growing in popularity, particularly among young people, is having an impact on language in PNG. For example, another study conducted in PNG found that increasing use of SMS by students is paving the way for the emer-

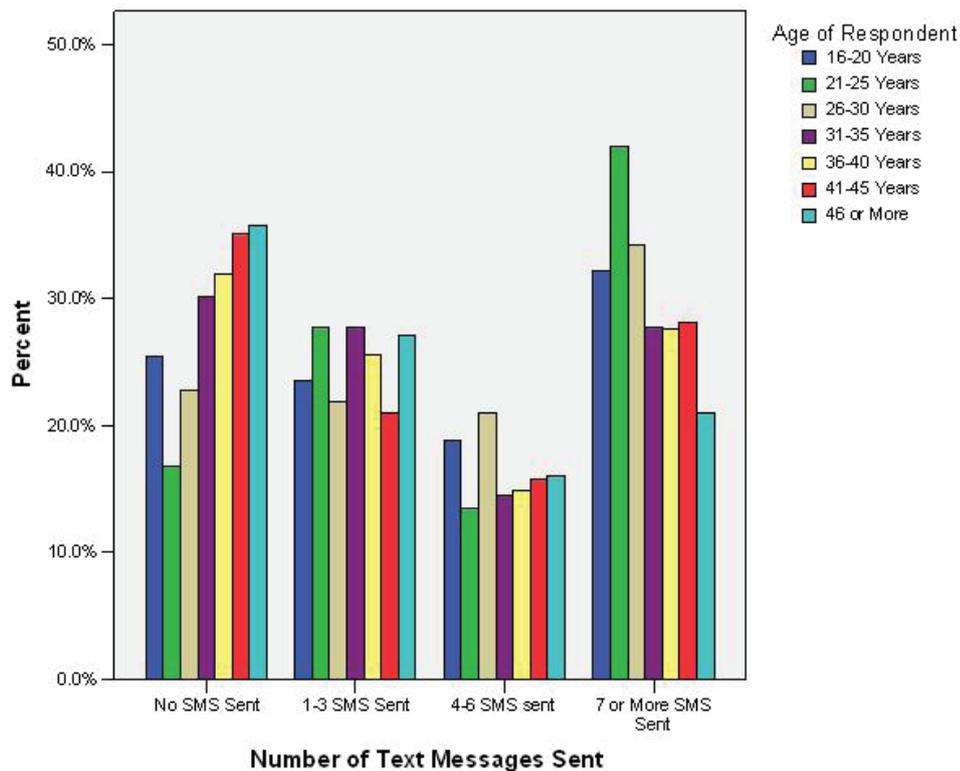


Figure 2: Frequency of SMS use among different age groups.

gence of new words and changed forms of existing words (Abenisa 2013). Suwamaru (2013) collected the number of text messages sent by 325 respondents in a single day, sorting them by respondent age and number of messages (Figure 2).<sup>1</sup>

Unsurprisingly, the use of SMS texting is proportionally more frequent among younger people aged 16 to 30 (Figure 2). The popularity of SMS messages is due to cost benefits, and the message format encourages the economical use of words, which some respondents asserted is causing changes in spoken and written English and Tok Pisin.

#### 4. Healthcare Services

Mobile phones are regularly used to make important healthcare visitation announcements for rural villages. This exemplifies the advantages of mobile phones in reaching villages that are usually separated by rivers and challenging terrain. In PNG, mobile phones are used advantageously to reach people across geographical and temporal boundaries. While a mobile phone is not a total substitute for roads and transportation (Kyem and LeMaire 2006), it is an important means to garner support or effort at a distance.

The use of mobile phones to support healthcare has been best documented in other developing countries in sub-Saharan Africa. In Botswana, patients who own mobile phones are sent SMS messages reminding them to take medication at specified times (ITU 2009). And in Uganda, SMS is used to strengthen prevention-of-disease programs complementing the limited healthcare delivery system (Danis et al. 2010). Other efforts where mobile phones support healthcare in developing countries include education and awareness, remote data collection, remote monitoring, communication and training for healthcare workers, disease and epidemic outbreak tracking, and diagnostic and treatment support (Vital Wave Consulting 2012; Watson 2014).

A recent study in Milne Bay Province investigated rural health workers using mobile phones to exchange real-time advice during time-critical medical emergencies (Watson 2014). It was found that mobile phones ably supported healthcare workers with coordination efforts during emergencies. The survey reported in this paper also found the use of mobile phones in supporting the delivery and

coordination of health services. As one respondent noted:

Mobile phones have made easy access to medical supplies, so when the supply runs out, we call the headquarters and request for new supply. It is through the mobile phones that we request new stock to be delivered. Mobile phones are also used in emergency situations to organise the transportation of women in labour to the healthcare centers. For me, I also use the mobile phone to undertake malaria parasite density count using the calculator option on the phone. I take pictures of injuries and Bluetooth them to colleagues. (#030)

Outside Goroka, Eastern Highlands Province, this healthcare worker captured images of injuries on a mobile phone for distribution to colleagues through Bluetooth for them to give an assessment before dispensing medication to patients. Phones were also used to disseminate healthcare announcements by relevant authorities via SMS and to source medical drugs from provincial centres. These examples exemplify that mobile phones are used in supportive roles for healthcare systems in PNG (Erbs 2012).

Ascertaining the availability of medical drugs in towns and organising logistics concerning sourcing and delivery is important in PNG given the persistent transportation challenges which impede a smooth flow of goods and services. In remote locations, mobile phones are the only means to alert or organise transportation to ferry the sick to healthcare facilities. PNG villages are sparsely distributed and often many kilometres away from government service centres — they may be separated by dilapidated roads, river or sea crossings (Howes et al. 2014).

The practice of using SMS messages by healthcare officials and agencies is common in PNG. For example, healthcare authorities in collaboration with other non-government organisations such as BAHA (Business coalition against HIV/AIDS) use SMS messages to promote safe sex (Suwamaru 2013). The next respondent offers a glimpse of using mobile phones to plan and announce healthcare visits by medical officials.

In many rural areas, healthcare workers announce their scheduled visitations to the villages through these phones to ensure good attendance ... Also we occasionally receive health tips or advice from healthcare authorities or even HIV/AIDS associated agencies such as BAHA through mobile phone SMS. (#1534)

## 5. Business Activity

Mobile phone use in business is diverse, including activities such as fresh food producers seeking better prices in attractive urban markets and village trade store owners using mobile phones to inquire with wholesalers in towns to check for prices of certain goods before deciding to place orders (Sharp 2012). Both strands of data showed that respondents appreciated mobile phones as important in supporting business activities where usages varied from accessing information and markets to enabling job searches. The perceptions and experiences identified in this survey concerning mobile phone use in business activities are similar to findings in India and the Philippines (Donner 2005; Greengard 2008).

In the highlands region, more than 80 per cent of those interviewed agreed that mobile phones are used in a varying range of income-generating activities. A widowed woman spoke about the use of mobile phones in garnering manpower to maintain her cash crop in tandem with a money lending business. She first explained how using a mobile phone assists in management of a coffee garden:

When my husband died, it was challenging for me to manage the coffee garden. My two daughters are away attending college, one in Lae and the other in Port Moresby. Now I rely on distant relatives and other youths whom I engage using my mobile phone to assist me in maintaining the coffee garden. I also source assistance during coffee harvest seasons from other women to whom I relay messages via mobile phones. I sell either green or dried beans for which buyers offering better prices can be identified via mobile phones. (#215)

Other new types of businesses are being created through the use of mobile phones. An example is given in this further narrative by the widow, which reveals how mobile phones facilitate her money lending business:

The mobile phone also enables me to organise and manage my small money lending business. Potential borrowers call me to discuss the amount they desire and the day they wish to get the money. Some clients have bank accounts and we have organised to transfer funds via mobile phones. Others pay physical visits to collect and also to repay their borrowings with interest. Clients who fail to pay on time are called with this mobile phone. Defaulters are suspended from future borrowings, until they fully clear their debts. (#215)

Moreover, surveyed people use mobile phones to acquire information on goods and services which enabled them to make business decisions, as expressed by one respondent:

I use the mobile to get information on goods and services. I wanted to find the price of one product from different suppliers, I used the mobile phone. From this, I made the decision where to buy from based on good price. I also communicated with people I know to find out certain cocoa buyers' rates. This way we decided who to sell our cocoa to, but other considerations come into the picture such as transport and distance to the buyer. (#1343)

The previous lack of diversified ICT services in PNG may have denied citizens from harnessing them for business purposes. Both quantitative and qualitative data from this survey showed that the freer mobile phone environment has seen significant adoption and use of mobile phones by citizens for various business activities. The PNG experience is similar to experiences in Bangladesh and some parts of sub-Saharan Africa, where incumbent telecommunication operators largely denied rural areas of services (Rashid and Elder 2009). There are differences, however, in that PNG has a dilapidated transportation infrastructure necessitating that

mobile phones be the principal mode of connectivity within and between distant places.

### Call Credits

Some uses of mobile phones are innovative and draw entirely on the new opportunities provided by the phones themselves. For example, owning a mobile phone can become a source of direct income. Up to 14 per cent of respondents claimed to send and exchange call-credits between circles of friends and relatives. As one respondent noted:

Mobile phone also brought about income earning opportunities for us. Many people in our community sell call-credits. The call-credits or top-ups worth K1 can be re-sold for K1.20 with 20 toea as the profit. The flex cards worth K3.00 is re-sold for K4.00 and K1.00 is the profit. In that way we make money in our community. (#1040)

In other cases surveyed users claimed that exchanging call-credits was a form of business because the call-credits got resold by the receiving party. Interestingly, this is synonymous with the discourse regarding the strength of weak ties within social networks that are used by friends and relatives to help one another with possible opportunities (Granovetter 2005). Some send call-credits to relatives in villages to enable them to make calls to people they knew who were in possession of certain information. Others reported using mobile phones to publicise existing jobs or other income earning opportunities. Respondents also noted that mobile phones were used as direct earners of income through sales of mobile phone handsets, call-credits (known as prepaid cards) and other accessories.

### Accessing and Sharing Market Information

Other business effects of mobile phones see the technology enhancing or intensifying pre-existing business activities. The informal economy is hugely important in PNG. For example, growers sell fresh produce at roadside markets or transport it to markets in towns (Sowei 2009). In certain places, transportation challenges persist (Watson 2011), however, with mobile phones access to appropriate market information has enhanced income-earning opportunities for these produce sellers. By using mobile

phones, local farmers can coordinate production, delivery and sale of local produce in various markets. For example, in highland areas, 160 farmers (100 per cent of survey respondents) claimed they use mobile phones to coordinate potato production and transportation to attractive markets in the coastal cities of Lae and Port Moresby. These farmers are able to identify prices and demand conditions at major towns, and use mobile phones to finalise logistical decisions and volume of supply to those centres.

Koczberski and Curry (2014) studied aspects of strengthening livelihoods for food security amongst cocoa and oil palm farming communities in PNG. They identified issues concerning population growth impacting access to land for food production by locals around oil palm areas. West New Britain Province hosts large oil palm plantations employing hundreds of labourers from all over PNG. Extended families from the oil palm blocks venture into poultry and piggery projects, while others grow garden food for personal consumption and sale. Mobile phones are often used by both buyers and sellers from the oil palm plantation communities, or from nearby Kimbe town. Oil palm fruit harvesting and sale to New Britain Palm Oil Company occurs every fortnight, providing income to communities who then engage in trading of local produce. All of the 145 respondents claimed that mobile phones enable trade between producers and consumers in and around these oil palm blocks. This example illustrates that people do engage in food production to fulfil their consumption needs or to supplement revenues from oil palm. Mobile phones have inserted themselves into the production and supply chain between producers and consumers.

On Bougainville Island, the main cash crops are cocoa and copra, for which prices fluctuate in response to external supply and demand conditions (Suwamaru 2014). Producers rely on market information accessed via mobile phones to decide on which upstream buyer to sell their wet and dry beans. Upstream buyers, too, use mobile phones to attract producers by disseminating information on prices and incentives, such as free nursery and packing bags among accessories that they

offer. This exemplifies bi-directional use of mobile phones by downstream and upstream cocoa and copra traders using up-to-date information, ensuring better deals. Research on the use of mobile phones in cash crop practices in sub-Saharan Africa and rural Bangladesh shows similar activity (Cohen 2001; Donner and Escobari 2010).

Another study by Palackal et al. (2011) documented how fishermen in Kerala, India, access market and price information, reducing the bargaining power of middlemen, which reduced costs. The use of mobile phones by fishermen for direct access to the buyers, rather than going through the middlemen, resulted in improved earnings for the fishermen and better prices for the buyers. There are similarities with this and the mobile phone use by fishermen of Gaire village, along the Magi Highway in Central Province, with 81 survey respondents. Some Gaire villagers work in Port Moresby, but the majority engage in fishing, gardening and other activities, including operating roadside markets. This survey found that fishermen used mobile phones in finalising logistics, maintaining contact with the village while at sea and informing potential buyers of the sizes, types and price of fish caught. While some fish are sold at roadside markets, many are sold to pre-booked customers in Port Moresby who pay better prices, as the fish are brought fresh to their doorsteps. Squid and lobster seasons bring extra business to these fishermen where they supply fresh catch to supermarkets in Port Moresby. Mobile phones are used to negotiate prices with supermarkets, often resulting in better deals for the villagers as they can deal with those buyers offering better prices.

### Reducing Business Costs

Access to services and markets through mobile phones has also reduced business costs associated with unnecessary travel. For example, survey participants in Bougainville and in the highlands reminisced about the 'pre-mobile-phone' days when they incurred high transport costs travelling to towns to use public payphones, which were regularly out-of-service. Many spent time and money but returned to their villages without making a phone call. Some of these unsuccessful calls were

to wholesale businesses in other provinces or major towns concerning availability and prices of groceries or hardware materials. Others related to checking up on awards of local contracts. With mobile phones, access to an array of services in PNG is now being experienced. A Bougainville businessman described how he now coordinates the ordering of cargo from Tropicana in East New Britain Province without the need for expensive physical trips:

I use the mobile phone to get information on goods and services. I call Kokopo Tropicana wholesalers to inquire about availability and price when my stock is running low. Mobile phones have helped very much in accessing information regarding my business. (#1530)

### Mobile Banking

Respondents also used their phones for mobile banking (m-banking), including checking of balances, transferring funds, paying bills and topping-up phone credits over the internet.

The mobile phone helps me to transfer money and check my bank balance and helps me to maintain business contacts. This is an improved and newly developed way to do banking and business, one that was never made available with Telikom. Digicel mobile phones offer new ways for business and banking. (#1205)

This respondent acknowledges m-banking and the convenience of keeping business contacts through mobile phones. Although m-banking is a recent offering in PNG,<sup>2</sup> respondents noted its convenience and trusted its security. Another village trade store owner talked about how he uses the mobile phone to organise new stock and the fortnightly salary for his three employees.

The mobile phone is magic. It helps me to order my cargoes from town where I call my daughter who lives there and she places the orders for me. I transfer the money to her mobile and she pays for all the cargoes. When they are ready, my employees go to town on the truck and pick them up. I also pay my

employee wages through the mobile phone fund transfer reducing the risks involved in handling and dealing with cash. (#1066)

This village trade store owner describes the multiple roles of mobile phones in his business. First, he uses the phone to place new stock via the daughter away in town — this also has a social aspect in that he keeps in regular contact with her. Second, he transfers funds to her mobile phone, which is a business or financial transaction over the phone. The daughter pays for the required cargoes in town, which are collected when ready by the trade store employees. Finally, this trade store owner pays fortnightly wages to his employees by transferring funds to their accounts, an aspect of m-banking. In this there is a safety aspect, especially in PNG where thievery can occur. This is particularly true where travelling along highways with cash can be risky.

In some parts of the developing world similar experiences have been noted, such as a service called M-PESA in Kenya. There are well-documented anecdotes concerning transfer of money through mobile phones using the M-PESA service (Greenard 2008). M-PESA allows users to conveniently save, transfer and spend cash irrespective of their physical location (Heeks 2010). The M-PESA service has been experienced to be reliable and affordable to people with no access to banking — ‘the unbanked’. The success of M-PESA has been manifested by its replication in other countries like Tanzania, South Africa and Afghanistan (ITU 2009).

### 6. Adverse Aspects

Not all aspects of mobile phone use are positive. Many respondents reported negative effects in respect of social and gender relations. Some were concerned about certain uses of mobile phones that are contrary to societal norms. In the coastal areas, up to 15 per cent of respondents reported undesirable aspects of mobile phone use, such as exchanging of unsolicited material — concerns reflected in other literature on ‘phone friends’ where extramarital relationships organised over mobile phones led to violence from suspicious partners (see Andersen 2013). Other respondents in the highlands region

claimed that the use of mobile phones relating to extramarital affairs was a private matter. A coastal respondent noted:

Aspects of mobile phone usage brought about some changes in the community in both good and bad ways. The convenience of establishing contact via mobile phones has led young people to engage in unauthorised marriages leading to pregnancy. This is contrary to the culture of my community. Otherwise aspects of mobile phones usage have really helped the community to contact relatives living in distant places to give information concerning issues taking place at home. (#1172)

### Conclusions

The survey discussed in this paper provides new data that illuminates various aspects of mobile phone usage across a number of spheres of economic and social life in PNG. Examples of such aspects include the use of mobile phones in supporting business and access to markets for citizens and in increasing local producers' access to market price information. SMS messages have also been observed in significant use among school students, while health agencies have also been found to be using SMS messages to promote health-related awareness. The survey also found financial institutions such as banks offering SMS-based banking services for their customers, which were generally well received by respondents. Notwithstanding such beneficial usages, there have also been claims of adverse aspects of mobile phone usage, largely concerning gender and social relations. Mobile phone network access now covers urban and rural areas, mainly through Digicel, making them the most common vehicle for internet access. Survey results suggest that this has seen notable increases in citizens participating in online forum discussions and also using public domain email facilities.

Overall, citizens have embraced mobile phones to the point where some view them as indispensable and practical appliances. This survey provides a useful and important overview of the range of uses of mobile phones in PNG. Given the importance of mobile phones to the everyday lives of PNG citi-

zens, which this survey suggests, it should serve as a useful baseline for discussions on how appropriate regulatory safeguards are formulated for continued and improved choice in price and value in the mobile phone market in PNG.

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### Author Notes

Joseph Kim Suwamaru is a senior lecturer at Divine Word University, Madang, and was recently a visiting fellow at SSGM, ANU. His research interests include social media and aspects of mobile phone use in developing countries.

### Endnotes

- 1 This chart was compiled from the number of SMS messages sent by respondents (n = 365) the previous day.
- 2 For an overview of mobile banking in other markets, see Donner and Tellez (2008).

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