Could mobile telephony be harnessed for development in Papua New Guinea?

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Abstract

Could mobile telephony be harnessed for development in Papua New Guinea (PNG)? Could mobile phones be utilised to enhance the security and prosperity of rural communities? Could mobile phones be a useful tool in the achievement of the PNG 2050 Vision targets? This paper is based on literature review around use of mobile phones in development in Asia, Africa, and the Caribbean. It also draws on discussions with key players in PNG, such as NGOs, UN agencies, donor partners, telecommunication companies and the government of PNG. Anticipated benefits of mobile phone availability have not been fully realised in rural areas of PNG to date due to pricing, difficulties with recharging handset batteries in communities which do not have mains electricity supply, and also concerns about negative social changes related to mobile telephony, for example parental stress over youth forming unsuitable relationships. Nonetheless, there are manifest possible ways for mobile phone technology to change user communication patterns positively regarding economic output. In sectors as diverse as health, education and law and justice, discussions are currently underway to establish how mobile phones could be used to increase service delivery, particularly to rural and marginal communities.

Introduction

Mobile phone coverage has extended to towns and rural areas of Papua New Guinea (PNG) since 2007. Prior to this, few people in PNG had access to any kind of phone. While social research has explored the attitudes of rural villagers towards this new service (Watson 2011), it is as yet unknown as to whether mobile phone service can help to enhance opportunities for development in PNG. This paper will: provide contextual information about the expansion of mobile phone service in PNG; detail initial uses of mobile phones in development endeavours in other regions of the world; outline the current position of key players in PNG; and cover mobile phone research undertaken to date in PNG.

Mobile phone service in PNG

In PNG, the installation of landline telephone infrastructure has been well behind its Pacific neighbours (Crocombe 2001, 270) and also expectations of residents (Jussawalla 1994, 159). To this day, landline phone service is essentially limited to urban centres (Islands Business 2009, 41; Watson 2011, 273). As over 87% of the people of PNG live in rural areas (National Statistical

Office of Papua New Guinea 2004), most of these people have never had a landline phone near their home.

Up until 2007, the government telecommunication provider, Telikom PNG, held a monopoly (Barker 2008; Marshall 2007) and provided limited mobile phone service, mainly in towns and cities (Watson 2011, 47). In 2007, licences were granted to two other mobile phone operators (Marshall 2008), one of which never commenced operations (Watson 2011, 47). The other new licence was granted to Digicel, a company which operates mobile phone services throughout the Caribbean (Digicel Group 2011).From July 2007, Digicel commenced operations in PNG and quickly expanded its new mobile phone network to include rural areas (Barker 2008). Since 2007, the number of mobile phone subscribers in PNG has increased substantially, with over one million people in PNG becoming mobile phone subscribers since 2007 (Gouyet al. 2010). At present, there are three mobile phone providers in PNG: Digicel, bemobile and Citifon.

Mobile phones in developing nations

The Pacific has been one of the last parts of the world to have widespread mobile phone access and uptake. Developing nations in Africa, Asia, the Caribbean and elsewhere have experienced significant growth in mobile telecommunication markets, particularly since 2000. In the decade between 2000 and 2010, the number of mobile phone users in developing nations increased dramatically, meaning that users in developing nations jumped from roughly one third of the total number of mobile phone subscriptions in the world, to nearly three quarters of all mobile phone subscriptions (International Telecommunication Union 2010).

Despite high rates of uptake in developing nations, 'affordability remains a challenge for many poor people' (Watson 2011, 34). There is contention amongst mobile phone scholars as to whether mobile phones are an economic boon or a costly burden for poor families and communities (Watson 2011, 261-263). It is clear though that the social connection afforded by mobile phones is embraced widely by people from disparate and differing cultures, as has been shown in numerous mobile phone studies (Watson 2011, 238-240).

Mobile phones and development

As mobile phone services have spread into rural areas and poor communities in developing nations, scholars, donors, development workers and others have started to wonder whether the newly available technology could assist in alleviating poverty and improving well-being for marginalised, disadvantaged groups. There is merit in being cautious about wild claims of technological solutions to complex problems, and it is worthy to avoid purporting 'an almost blind faith' (Thussu 2006, 46) in technologies and their capacity to catalyse change. Nonetheless, there are distinct properties of mobile phones, when compared to previously available communication technologies, which give rise to hope. In particular, 'this technology is not a device for the dissemination of

one-way communication messages (like radio or television), but instead facilitates the kind of two-way dialogue which development theorists have been advocating' (Watson 2011, 262) for some time. The mobile phone is portable and can also be relatively cheap to purchase; two key differences when compared with previous technologies such as landline telephones, fax machines, computers and so on. Such properties mean the mobile phone is seen as having the potential to directly assist poor people, particularly those in remote or isolated locations.

As one commentator has remarked, 'currently the international-development community is having a love affair with the mobile phone' (Toyama 2010, no page). Development projects which utilise mobile phones in some manner have commenced in many parts of the globe. These projects can be referred to as 'M4D' projects, that is 'mobile phones for development' projects. Many of these projects are only in initial, pilot phases. Many have not been accompanied by rigorous research which can sufficiently validate claims and outcomes. It is necessary for further studies to be undertaken which carefully measure outcomes.

The largest area of interest is the health sector, with 'mHealth' the term used to refer to health-related studies or interventions which utilise mobile phones. For example, two chronic disease trials attempted to engage patients through automated mobile phone text messaging and thus allow clinicians to focus their time on patients with symptoms falling outside of acceptable ranges (Boland 2007). Note, text messaging, or SMS, is a facility which allows mobile phone users to transmit text between phones. In another trial, young people were able to obtain confidential sexual health information and advice through text messaging (Levine 2007). In a maternal health project in Indonesia, rural midwives were issued with mobile phones and benefits of the scheme included accelerated access to information, reduced response times in critical situations and increased communication amongst healthcare workers (Chib, Lwin and Jung, 2009).

Another burgeoning area is mEducation, or the use of mobile phones in the education sector. A successful program in Bangladesh has offered inexpensive English language lessons through mobile phones (Prosser 2010, 31-33). Other schemes have utilised mobile phones in teacher training (Selinger 2009).In banking and finance, mobile banking and credit transfer options provide opportunities for people in rural settings to gain access to money, or at least mobile phone credit. An additional area of interest is the use of mobile phone handsets as data collection tools. Various software programs have been designed in order to allow survey questionnaires and/or answers to be captured in or transmitted through mobile phone handsets.

Key players in PNG

The receptiveness for using mobile phones for development in PNG is high. Mobile operators are open to M4D projects. Development sector organisations are expressing much interest regarding M4D, but most projects are only in the

earliest idea phase. Non-government organisations are keenly thinking about and discussing M4D, but similar concerns are expressed by such organisations, including costs for the end user, the cost of the barrier to entry for the organisation, and the problem of charging mobile phone handset batteries in locations with no mains electricity supply.

While non-government organisations and church agencies vary in their size and the issues they are trying to address, many presently wish to take advantage of the opportunity provided by the expansion of mobile phone networks in PNG. However, there are obstacles to the use of mobile phones in the work of these bodies. Most organisations do not have the technical capacity or understanding to be able to implement the projects they envisage. Others are not sure of what is technically possible regarding the technology and are therefore limited to the earliest idea phases in relation to how mobile phones could be incorporated into or added to their programs and activities.

There are some pilot projects already planned or underway in PNG. The following is not an exhaustive list, but instead a selection designed to show the range of potential applications possible. The organisation Igat Hope is using text messaging to link its stakeholders in provinces around the country and thereby support them in their work (Narokobi 2011). The PNG Institute of Medical Research intends to use text messaging to ensure that patients with tuberculosis complete drug courses. The National Catholic AIDS Office has been using mobile phones to follow-up with HIV positive patients, as well as for operational procedures. The University of Goroka launched its distance education program in 2010 and is currently running a pilot using mobile phones to contact students in remote locations.

Mobile banking (or mBanking) was launched in PNG by Bank South Pacific (BSP) in April 2009 (Bashir 2009, 31). Digicel is enabling customers to transfer money as well through their 'cellmoni' service, launched in 2011 (Digicel Papua New Guinea 2011) and licenced in 2012 (Wrakuale 2012). The postal service, Post PNG, also offers a money transfer scheme which is now linked to mobile phones, known as 'Mobile SMK'. In November 2011, Nationwide Microbank launched a pilot project in Kimbe, 'MiCash', which aims to use mobile phones to both interact with existing customers and attract new customers.

Solomon Islands Rural Link has conducted training in Bougainville as part of the Commonwealth of Learning's healthy communities initiative, in which a community radio station has experimented with text messaging as a way of engaging with listeners and involving them in learning programs. A second initiative of Solomon Islands Rural Link in the Solomon Islands will be an interactive, voice-based system for mobile learning which will be trialled in the coming year to support adult learning around agricultural issues.

Mobile phone research in PNG

The first, large-scale, independent research project on mobile phones in PNG focused on rural villages in the earliest days of mobile phone access and use (Watson 2011). The research found that the introduction of mobile phone reception into rural areas of PNG was generally viewed in a positive light by rural villagers. However, this launch was seen as bringing with it social changes which caused concern, for example about people utilising the technology to engage in adultery. Another important finding was that rural people thought the mobile phone service was too expensive. Nonetheless, mobile phones have a valuable role in enabling rural villagers to communicate with relatives and friends in other parts of PNG, particularly given poor access to other communication technologies, such as landline telephones and the Internet. During the first months that mobile phone reception was available in rural areas, 'uptake rates have generally been good, even while actual usage has often been low' (Watson 2011, 272).

> 'Attitudes to mobile telephony are generally positive, although there are serious negative social concerns; some social relationships are changing (such as parental relationships with young people), while others are being reinforced (particularly connections with relatives residing away from the village); costs are seen as prohibitive or inhibitive by rural villagers, while mobile telephony has not led to a clear improvement in household incomes; uptake and use have been limited by lack of electricity infrastructure and by cost factors, although aided by urban and waged relatives who have purchased handsets and mobile phone credit for rural villagers' (Watson 2011, 272)

Other academic mobile phone research has been undertaken by undergraduate students at PNG institutions or is currently being planned by postgraduate students. In the anthropology field, there is interest in the mobile phone, with numerous studies being planned. Linguist Olga Temple at the University of Papua New Guinea has been studying language use in text messages transmitted through mobile phones (Temple 2009; Temple 2011).

Conclusion

It is not yet known whether mobile telephony could be harnessed for development in PNG. While there appears to be potential for the technology to be beneficial, particularly in supporting rural communities, there is as yet no evidence to confirm this. To address the need for rigorous research in this area, pilot projects could be undertaken in a range of sectors to test the effectiveness of the technology as a platform for improvements in service delivery.

This paper has introduced the notion of M4D and has briefly outlined some areas of application in other developing nations. It has been informed by discussions with key players in PNG, as well as research undertaken in rural villages during the early days of mobile phone adoption in PNG. There are manifest possible ways for mobile phone technology to change user

communication patterns**.** The question remains as to whether mobile telephony could be used to increase service delivery, particularly to rural and marginal communities.

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