We just ‘SHAREit’: Smartphones, data and music sharing in urban Papua New Guinea

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Abstract
This article examines how the use of mobile phones and associated software creates and sustains regionally diverse urban communities. There is an interdependent connection between music that is highly participatory and locally relevant, and processes involved in sustaining key social relationships across a variety of groupings. Increasingly ubiquitous technologies such as mobile phones are used for musical purposes in ways that specifically put certain processes to work to sustain these social phenomena. This connects people with transnational software-based commerce through social media, local telecommunications companies and phone manufacturers. That results in the navigation of ecologies and economies of data, hardware and software that work in local urban circumstances. In the case of data, we demonstrate how modes of exchange and reciprocity tied to social relationships exhibit similarities with informal economies of tobacco and betelnut. With social groups, the church-based community perspective provides urban examples of communities that cross regions, and extended family networks. This ethnographic perspective shows how increasingly global technologies are used in urbanite Melanesia in ways that sustain long-standing values and practices, while also incorporating identities and associations around changing urban, national and international circumstances.
INTRODUCTION

In 2018 we talked with Jerry, a 20-something year old man who was a major fan of gospel music. Reflecting upon the music that he listened to and how this has changed over time, he discussed the importance of listening to new music to keep up with the latest sounds and messages. Music listening for Jerry was a way of cultivating his own creativity in his lifelong investment in music performance which he was limited to doing in his free time. He was often busy with his work in a public service job in Port Moresby, Papua New Guinea (PNG), and found he had little time to attend events or meet up with fellow musicians. Instead, he stated that he kept his connections to music and musicians in his smartphone. In fact, when we asked how he found out about new music, he noted that a few musician friends sent him music on the messaging app WhatsApp. For Jerry, WhatsApp—and the compressed file formats through which the songs were transferred—was the key route through which he kept up with the latest music and, by extension, maintained his ‘cred’ as an amateur musician.

As Jerry’s experience highlights, smartphones have emerged as one of the most important consumer items in PNG. Smartphones, almost exclusively using the Android operating system, have rapidly spread there in the last few years, most obviously in cities and towns, but also in rural areas (see, Watson & Duffield, 2016). According to a recent report by the Global System for Mobile Communications Association, at the end of 2018 there were 2,525,643 unique subscribers, of which less than 1 million (999,396) subscribed to the mobile internet. However, 76.2% of all mobile subscriptions were based on prepaid phone plans. While making calls and texting continue to be dominant uses of these devices, smartphones are also computers running a mobile operating system on top of the powerful Linux operating system. Their processing power and memory means they are capable of sophisticated, diverse activities, as demonstrated by the extraordinary number of apps available and used by a growing number of Papua New Guineans. Whilst over 67% of the population had access to the internet there were only 599,285 smartphones (Highet et al., 2019) and many of these phones are based in the capital of Port Moresby as well as other regional urban hubs such as Mt Hagen where networks and access to capital to use the networks are more available.

Phones also carry status value and represent being modern, connected and technologically adept. For example, in 2017, two young women studying in Port Moresby, Renagi (aged 17) and Pala (aged 22), came to stay with Crowdy’s family in Australia over Christmas. At the time Crowdy owned a cheap, but functional Android phone bought at an Aldi supermarket earlier that year. ‘The Aldi’, as it became known, had barely been used and was offered to Renagi to use while in Australia and when she returned to PNG. Despite not having a mobile phone at all in PNG, it became obvious early on that Renagi was interested in something much more sophisticated (and expensive) than ‘the Aldi’ and she felt that it was better to go without than to be seen with it. A year or so later, Crowdy met with Renagi in Port Moresby where she managed to acquire a high-end Samsung smartphone. Renagi's Samsung was in almost constant use, and music listening and sharing emerged as a seminal part of the activity.

Popular music—whether ‘international’ or more locally produced genres—is a valued form of public culture in PNG. This is particularly prominent in the capital city of Port Moresby where the arrival and settlement of different cultural and regional groups creates opportunities to explore the ongoing project of nation-making (Crowdy, 2016; Foster, 1997; Gewertz & Errington, 1999; Webb, 1993). We focus here on how various groups cultivate shared interests and activities that expand beyond
the kin-based forms of sociality that often dominate PNG relationships. To carry out this project, we
draw upon interviews conducted in Port Moresby and surrounds between 2017 and 2019 with a wide
range of listeners, as well as a community of musicians who participate in and create church music.
Our interviews explored how urban Papua New Guineans in Port Moresby obtained, shared, listened
to, and in some cases, rehearsed and recorded music with their smartphones. We also interviewed
musicians, radio producers and managers, journalists, audio engineers, media producers for online
content, and people with day jobs and close ties to music recording and performance. Importantly,
our participants consisted of people who identify with an increasingly diverse range of cultural and
regional origins, a phenomenon of growing significance in urban PNG. Based upon our participants'
reflections, we argue music sharing and listening reflects shared interests and experience that involve
people from an increasingly wider range of backgrounds and language groups. This distinction in
music sharing practices results mainly from the wider availability of internet-based services due to
the spread of smartphones from around 2012, a phenomenon which became more widespread during
the course of our fieldwork. Other significant factors are the continued prominence of Tok Pisin as the
lingua franca in Port Moresby and increased interaction between residents of different ethnic, linguis-
tic and cultural backgrounds in the capital.

To outline this transformation in music-sharing practices, we begin by discussing the ways in
which music sharing and listening have changed over the last two decades. We chronicle the shift
from the production of albums on cassette tapes and CDs to digital files such as MP3s (Hobbis, 2019;
Stern, 2014; Sterne, 2012), which are increasingly shared over mobile phones via a range of mecha-
nisms, including mobile phone data, wifi access (often at work or in public settings) and bluetooth.
We then explore a number of urban-based music sharing practices, and how content and social media
build and sustain groups extending well beyond kin and wantok connections that are more often
seen as characteristic of group identity in PNG. Music sharing and the associated communication
in a smartphone environment creates a demand for data that, in turn, requires analysis of the ways
in which ecologies of data are navigated. We further argue that the ways music and music sharing
operate through smartphones in urban PNG signal an important role in formation and maintenance
of relationships of reciprocity and obligation in interest-based groups that are significant because
they extend beyond what are typically viewed as ‘wantok’ relationships (see Kraemer, 2017). We
conclude by discussing how these daily acts of sharing and navigating local ecologies of data sustain
culturally diverse urban communities. At the same time, they also connect people to transnational
software-based commerce and associated complexities and inequities.

2 | FROM CASSETTES TO MP3 FILES

Since the 1980s, locally produced recorded music has been a vital part of Papua New Guinean contem-
porary culture and its early and subsequent development has been documented and analysed in some
detail (Philpott, 1995; Webb, 1993; Wilson, 2011). Such music consists mainly of songs sung in one of
the several lingua franca or many vernacular languages, and has been influenced by rock, reggae and,
more recently, R&B and rap. Stylistic links to older guitar and ukulele ensembles known as string-
bands are also often evident (Crowdy, 2005). Initially, the industry was urban centred, cassette-based
and dominated by a few main companies run by Chinese-Papua New Guinean businessmen, such as
Chin H. Meen. In the 1990s there were two main studio complexes until one was bought out by the
other in the early 2000s. After 2007, when cellular network infrastructure expanded, mobile phones
became more popular for listening to music. Digital sharing grew, and cassette production and distri-
bution declined rapidly. In just a few years, the chain of production, distribution and consumption
of popular music has moved from analog studios, cassettes and cassette players, to laptops, digital files and phones. Production has moved from being centralised and professional to more widespread and amateur (Wilson, 2011). Sharing of files has also moved from SD cards and bluetooth pairing (Crowdy, 2015), to the use of social media, messaging apps, and local wifi networks (Wilson, 2019). Although bluetooth sharing has waned considerably, the word blututim—which borrowed from the broader, shared creole language in PNG Tok Pisin—became widespread in everyday conversation (King, 2014, pp. 124–125).

Digital sharing is complex as Horst et al. (2021) detail. A particular aspect of our work in PNG centres on increasing use of social media as a way of communicating and sharing music, images, videos and information that has resulted in a demand for data. It is useful to divide discussion about this into two categories that provide essential nuance to data. The first is data in the form of content—and here we are interested in music files, but also video and images. The second is data in the form of conduit, or potential, bought and shared in quantities of bytes primarily through pre-paid vouchers offered by the major telecommunications companies in PNG. As we highlight in our discussion of the use of local apps that enable sharing through locally held content via wifi hotspots and WhatsApp groups, these aspects of data often intersect. Hobbis and Hobbis (2020, p. 2) explore how, in the Solomon Islands, localised internets are created as ‘socio-material networks that comprise both human and nonhuman infrastructures’ and our work accords with this.

3 | SHARING DATA AS CONTENT (MUSIC)

Sharing music is an important social practice. What gets shared, what does not get shared, and the interactions surrounding this, are key elements in the forging and sustenance of identity. In PNG, music in tok ples lyrics and styles that reflect regional characteristics and genealogies often circulate in networks of clan, kin and extended family who speak or understand these languages. For example, we noticed on a PMV (public motor vehicle) heading to the village of Irupara about 100 km to the south east of Port Moresby, that once the vehicle left the city, songs in the destination language were played continuously, and appeared to us to mark some sort of urban/rural boundary. Once the numerous stops to pick up supplies from Port Moresby shops were over, and the threat of theft perhaps diminished, smartphones appeared from people’s bags, and passengers made the most of the more effective voice and data coverage of town. People sang along with, and sometimes even recorded, the music played. After hearing a new version of a song Crowdy recognised on the PMV, we were told by people in the village the only way to obtain it was through personal networks. This contrasts with current gospel bands such as Covenant Creed, which record songs mainly in English and Tok Pisin, have listeners from across the whole nation, and utilise online streaming and download services, as well as international church connections, to share their music.

In Port Moresby many people noted that the capacity to share music via smartphones meant that they were also listening to more music—and often different kinds of music—than had been available to them previously. While most people we talked with had popular international and gospel music on their phones, the collection of other genres (many we did not anticipate) was also growing. A key example was Esther, a woman in her late 20s who grew up in Port Moresby. Esther was a massive heavy metal fan who became involved in Port Moresby’s small, but passionate metal scene over the past few years. When we spoke with her, Esther noted that she curated a collection of classic and new metal albums—Black Sabbath, Metallica, Ozzy Osbourne and many others—on the memory card of her phone. She described sharing particular songs or albums whenever she meets a fellow fan and gauges their interest, imagining these might inspire them. Esther and others like her have amassed
huge collections of music files from fellow musicians and fans as they return from travels and go online to download when they have data. These are stored on portable memory cards that are highly valued (see Hobbis, 2017, 2019). Because her songs were stored on memory cards and phones, she noted that she could listen to the songs during the times when she did not have money to go online and search for new music and she could also share these songs with her bandmates during and after practice. Prior to this she would never have had access to such a wide repertoire of music. Despite Esther’s own aspirations to be a musician, she recognised with some irony that the musicians themselves receive no income from this form of sharing. Moreover, such collections were often lost when a phone was stolen, a common occurrence in PNG.

Most of the people we interviewed were members of closed WhatsApp groups based on existing social and kin networks. Other community groups, including members of church congregations and sports teams, were also created in WhatsApp. In such groups, information, banter and jokes are shared alongside music files and videos. These closed WhatsApp groups often worked to reinforce and strengthen existing social relationships, yet they also enabled interest-driven activities to emerge where people can find and share information on interests, passions and hobbies that they may not necessarily share with their social or kin networks (see, Ito et al., 2020). In addition, one-to-one sharing of songs, videos and performances was also common. These patterns of new connections and, in some cases, more cosmopolitan identities are closely related to the development of national identity (see, Besnier, 2009; Cox, 2021; Cox & Macintyre, 2014; Foster, 2002, 2008; Macintyre, 2011; Spark, 2014, 2015).

Whilst listening was one key practice, amateur and professional musicians were particularly adept in their efforts to leverage platforms like WhatsApp and the local ‘hotspot’ sharing app SHAREit for production and dissemination of their music. Ben, a man in his late 30s who regularly attended the Seventh Day Adventist church, was involved in a band that played contemporary gospel music. While noting that this band was not really recognised outside of their church and local connections, they were slowly trying to build the band and, in turn, a name for themselves. They created a WhatsApp group for their band and started recording some of their rehearsals. After circulating on the WhatsApp group, one of his bandmates decided to create a Facebook page and upload small clips when he was on wifi at work. They hoped to eventually get gigs at other churches and festivals. A few of our participants talked about recording some of the lyrics or melodies that they had been playing with over WhatsApp so that when the band members finally came together, the material was already known. And, as with other places in the world (Mahendran, 2013), beats, guide tracks and recordings in various stages of completion were also being shared via WhatsApp with a small number of musicians and producers.

Finally, WhatsApp and (to a lesser extent) Facebook Messenger as music sharing platforms had implications for the ways in which new music was discovered by musicians, DJs and producers. For example, many of the musicians, producers and others in the industry reported receiving new music from direct messaging apps. In fact, one radio DJ noted that these less formal networks of music distribution and circulation were one of the most important ways he heard about new, cutting edge music. Capacity to build and maintain networks of producers, musicians and other wantoks who had their fingers on the pulse of the newest local music had become one of the defining features of a good DJ. Notably, and despite the fact these phones and apps were not provided by their employers, these online sharing tools had become a critical piece of music sharing and distribution.

Hobbis and Hobbis (2020) have detailed aspects of moral reasoning that Solomon Islanders carry out around the sharing of digital content, and we have observed similar processes. One of our research participants was a music producer who was a well-known source for new music. He noted that to avoid the perception he was not generous in sharing music, he was careful not to have music on his phone that he expressly did not want to share. This was reminiscent of experiences Crowdy had in
Port Moresby in the 1990s. X’s close friend, and well-known musician, the late Tony Subam, once joked to him about hearing some coins jingling around in X’s pocket and commented ‘Sapos ol harim pairap ol sem moni blong yu bai pinis hariap’ (If people hear your coins jangling around like that your money will finish quickly).

This obligation of giving while keeping follows the assumption that if an in-law or friend hears money, then there is an obligation to share some of it. Saying no, even if in good humour, would be considered very poor behaviour; impolite at best, downright rude at worst. Second, and more subtly, is that one would be much better off by storing money in some quieter fashion, so that if (when!) asked, although dishonest, the more acceptable ‘sori, nogat!’ (sorry, I do not have any) could be given, or a smaller amount be offered without disclosing the full extent of one’s stash. Acts of sharing digital content and providing credit that can be used as data can be seen as examples of tension between meeting obligations and grappling with shifting relationships (Sykes, 2017; Schram, 2010).

**4 | DATA ECONOMIES, DATA ECOLOGIES**

The capacity to participate in WhatsApp, Facebook Messenger and other forms of digital sharing hinges upon having access to credit for data. Even in urban Port Moresby, use of broadband wifi was very rare, and few of the people we interviewed had access to it at work. Coffee shops and other spaces offering free wifi often required the purchase of expensive drinks and food at the prices that wealthy or expatriate populations could afford, a tax of sorts on the infrastructure (Anayo & Horst, 2016). There were also a range of data promotions for daily and weekly data use available with one of the many mobile phone carriers, Digicel, BMobile and Telikom; however, these short-term plans tend to limit access in terms of time and size of download. Like the pre-paid culture—or the cultural forms of calculating the value of a call and relationship and the associated strategies to try to avoid airtime charges—that emerged around sending and sharing of phone credit globally (Donner, 2015; Foster, 2018; Horst & Miller, 2006; Doron & Jeffrey, 2013; Sey, 2011), data comes in different sizes and packages. When not purchased in bulk at a post-paid rate, data are incredibly expensive for the average Papua New Guinean. Our research has indicated that purchasing data in small amounts is very common. One of the most commonly bought flex cards costs K3 (Kina is the unit of value in PNG), which could get 200-mb of data at the time of writing. The cost per megabyte would therefore be AUD$0.007. A 5-mb audio file (a decent length music song mp3 file) would cost AUD$0.33, a very short video of 50-mb AUD$0.33, and a longer video or movie of 1-gb, AUD$6.6. In comparison to items commonly consumed and available for sale in the same street stalls (to be discussed in more detail later), a K1 betelnut is equivalent to 67-mb. This would be at the expensive end of the scale for both data and betelnut. The cheapest data commonly bought is an overnight bundle that gets 1-gb for K5 (so three times cheaper than the 200-mb for K3), and sometimes betelnut can be K0.50. In that case, one betelnut would be the equivalent of 100-mb. The most popular provider, Digicel, charged three times the amount of its off-peak bundle and data can be anywhere from 10 to 75 times more expensive than in Australia or other Pacific Islands such as Fiji. Recent work by Foster (2018) has highlighted that there also remains a deep distrust of the companies that offer these services to customers who have very little recourse when their minutes and data ‘disappear’.

As suggested in the previous section, music is shared through a range of platforms in PNG. However, because the cost of data is quite high in the country, sending and sharing music (and other activities) involves the adoption of what Jonathan Donner (2015) describes as the ‘metered mindset’. Papua New Guineans, like others around the world, operate in a pre-paid phone plan world wherein accessing social media and sharing music and videos requires actively calculating what to do and
when to do it by taking into consideration complex cost structures, data regimes and other economic activities through their mobile phones. Donner characterises the difference between smartphone use in the Global North and global south as ‘people [using expensive data bundles] don’t surf and browse, but rather sip and dip’. A common way people described coming across new music was to hear it being played by a relative, wantok or friend, and then requesting them to SHAREit. Despite the largely personal nature of music listening due to the design of mobile phones (see Itō et al. (2005) for a discussion of the ‘personal’, ‘portable and pedestrian’ dimensions of mobile phones), they are used in PNG for music in quite social ways. Phones are borrowed, people share an earbud each, bluetooth speakers are used, or people simply listen to the phone speaker together. Interviewees described that sometimes the requests to SHAREit can become irritating or inconvenient. In a society where kin and wantok obligations are strong, and ‘no’ is often not a realistic option, one person stated they had removed SHAREit and CShare from their phone, and when we were interviewing him at least, did not have an SD card and had no real intention of getting one. This has also been observed by Wilson (2019, p. 138) where acts of not sharing also constitute important ways to define social distance.

SD cards, or now more commonly the micro-SD cards that are used to supplement storage in many smartphones, can also have a certain visibility to in-laws, wantoks and others for whom obligations might exist. While it is a more subtle visibility, people have the technical skills to recognise someone searching a card with a file manager and playing a video. The borrowing or transferring of SD cards is common and has been for at least a decade now. The authors have certainly experienced this, with people asking for SD cards before leaving: ‘Pilis, lusim card wantaim mi taim yu go ya!’ (Please—leave your SD card with me when you go!).

Kin obligations, particularly in urban environments such as Port Moresby, can be complicated, extended and flexible. The terms ‘wantok’ and ‘wantok system’ are commonly used to describe such relationships, reciprocity and obligations (Goddard, 2005, pp. 137–147). Strategies to hold on to valued resources (money, data, new music) while maintaining obligations to kin and wantoks are a daily part of life in PNG, particularly for those who have jobs and a regular income. The way people buy small amounts of data at a time and curate files on phones are recent approaches to ongoing ways of urban being. As with other commodities on which people are reliant, the combination of dependence and relative scarcity leads to new forms of exchange and reciprocity.

In these contexts, data, as a useful commodity to people, is bought and used in ways that most closely resemble economies and markets around goods like cigarettes, betelnut (buai) and soft drinks. An important feature of how data is obtained by many Papua New Guineans is that it can be bought through vouchers (‘flex’ cards) often sold on the same table on the streets and in markets as these items. These sales are an important aspect of daily survival for many Papua New Guineans. Buai sales, in particular, form part of the basket of goods used to calculate the CPI, and changes in buai prices can have a noticeable effect on the index (Foster, 2002, p. 32; Sharp et al., 2015). What is important about the things on those tables is that they are in demand. People with small amounts of cash will buy them, many on a daily basis. While their purchase and the income earned by the sellers are at one level straightforward aspects of an informal economy, they also exist as part of a more complex exchange process with distinctly local inflections that construct notions of the self in a dividual as well as individual sense.

Mosko (2013) explores this with people from north Mekeo in the Central Province of PNG and commodities bought with cash, and our examples of data use here demonstrate some obvious similarities. Consider the following situation, with a Port Moresby resident with no regular income. Kila, who Crowdy has known for over 25 years, hails from a Hula speaking village, about 120 km south east of Port Moresby, and resides in Port Moresby with relatives. He has often moved back and forth, living for different periods of his life either in the village or Port Moresby. Kila does not have paid
employment, but runs errands for others in the house, keeps an eye on the place, unlocks the gate when people arrive at night, and is generally streetwise. He is an essential member of the household in this regard, and his role is not at all uncommon in Port Moresby. As a younger man, Kila smoked tobacco sticks, filtered cigarettes bought in singles or, when things were dire, by rolling tobacco collected from discarded butts in newspaper. If Kila had tobacco, he would readily share it, and friends and family members with cash would reciprocate. Kila’s presence would often be associated with a search for tobacco, and where socially reasonable, he might quietly ask for small amounts of money from those who might have it. Crowdy had not seen Kila for 10 years or so, but met with a couple of his relatives who were visiting Sydney recently. As conversation turned to who was staying in the house in Port Moresby, Kila’s name came up, and when asked how he was, and if he was still smoking, his relatives retorted with ‘yes, still smoking, and he’s on Facebook, always asking us for phone credit to get data’. Kila seemed to have become as dependent on data as he has been on tobacco, suggesting that data has become a thoroughly integrated aspect of socialising, communication and recreation.

Data, like *buai*, is regarded as something to share with kin and *wantoks*. Data can be exchanged for *buai*, and vice versa; someone might offer to send K1 credit for one *buai*, for example. Data might also be on-sold resulting in a small profit, depending on circumstances—‘I’ll send you K5 credit for K6 cash’. The giving of data can carry responsibilities. For example, a Papua New Guinean woman we spoke to in Sydney described how she recently sent data using her credit card to her brother in the village, with the express message that she was to receive detailed information about her father, who had been unwell. After sending the data, and within an hour or so of noticing Facebook posts about general village news being posted by her brother, she became furious and decided to call him to reprimand him that this was blatant misuse of her purchase and transfer of credit.

Familiar, everyday ways of sharing, gifting, buying commodities, inform, affect, drive, the way that phones are used, in ways to create identities that are not characterised by the regional, kin and *wantok* affiliations from which those same activities have emerged. Goddard (2000, p. 138), in his example of a fieldwork gift reciprocation that he felt was inadequate, reminds us that ‘the gift economy (as it is conventionally called) is substantially more than an exchange of objects’.

Data as a music file can have gift potential, but it also can have raw use value that can be measured in the size of a file that may or may not be available. A voucher for a quantity of data that may be used for various purposes has obvious commodity potential. These are not hard and fast categories by any means, but the process of thinking through what data represents is an important step in making such distinctions. The other important consideration is the quotidiant, relatively low-impact of such sharing and exchange—more at the *buai* cigarette end of the scale than exchange associated with significant events such as marriage or church fund raising. When someone shares data in the form of a voucher, they are converting their status and privilege as being part of the cash economy into forms of social relation that can, in turn, take a number of paths related again to the nature of data as either potential for sociality or the sharing of content. SHAREit, as a form of inter-machine communication, is a way of providing a glimpse into the data-as-free world, but is only useful if there are media in the form of data-as-objects to share. Getting the valued content to share requires the data-as-conduit stage. One needs new media; gifting someone a music track they already have is not much of a gift. From the perspective from which most anthropology is written, where data is effectively free, this aspect of value and transformation between commodity and gift is easily overlooked.

To illustrate, all of the people we interviewed had developed strategies that they felt were the most efficient way of sharing large files designed to minimise the use of costly data, and they willingly shared these tactics with others. In particular, the realities of limited data have led to widespread use of wifi sharing programmes like SHAREit or CShare. These programmes create local wifi hotspots that allow files to be copied between connected devices at high speeds. Connecting via bluetooth,
once everyday, was described as being a last resort, old and redundant. This meant that people had become quite invested in sharing and circulating movies, music collections and even apps that they did not pay for between friends and they preferred to do so by bypassing the need for data altogether. For example, a phone and tablet app called TubeMate was used to save video content from YouTube locally for subsequent sharing via local hotspot networks. As one of our participants, Tom, a male in his mid-40s noted, they had learned not only how to download these files but also to convert them to MP3 files or whatever other formats were readable on the tools that came with their smartphone. The enthusiasm around sharing was very common during our fieldwork. People keenly looked at the phones of family and friends to see what apps had been downloaded and then asked for desired files to be shared. It became routine for our research team to share applications such as the latest version of the Chrome internet browser via SHAREit. Nevertheless, the installation of a new app often meant that choices had to be made about what applications and other material to delete given limitations on phone memory size.

Whilst the popular radio stations often played ‘international’ popular music that could be heard almost anywhere in the world, a number of people we talked to had collections of other, often older music. For example, Serah loved gospel music. One weekend Serah was sitting around for lunch after church with her church sisters and they started talking about some of their favourite songs. As they talked and started to play songs on their phones, one of them started playing Covenant Creed, Serah’s favourite gospel group. Serah asked if she could transfer a few songs via CShare since she never gets to hear them on the church music station she tunes into almost every day. A few weeks later a friend noticed that there was a new Covenant Creed album online, which she downloaded and then shared; this gave her a sizeable collection of about 50 new and old songs from Covenant Creed and other local and overseas gospel bands that she listens to routinely alongside a small collection of church music from her remote village. Without CShare, Serah would not have been able to download and store so many songs on her smartphone.

5 MUSIC AND URBAN INTEREST-BASED IDENTITIES

As the last section highlighted, music sharing in urban PNG involves knowledge of data ecologies as well as the adoption of a ‘metered mindset’ that takes into account a complex series of kinship and wantok obligations. These activities take on additional meaning in the context of Port Moresby and its extensive urbanisation. Numerous people in PNG had parents from different parts of the country and had been brought up in other regions as employment, schooling and other opportunities made themselves available in different, and often more urban contexts. With this rural–urban migration came marriages and relationships with people from other places. For example, our research assistant, Michaeline, has mixed Motuan and Manus parentage, and is married to someone from the Western Highlands. Our other research assistant, Anton, was brought up in West New Britain to parents of Sepik heritage, but has land and strong family ties now in West New Britain and has been married to a woman from the province for almost two decades. For many people living in the capital, their children, and now their children’s children, demonstrate that this intermarriage is now several generations deep. These trends led to a more complex form of identity that incorporates traditional connections to ethnic groups and villages but also other forms of affiliation that do not necessarily operate like wantok relationships. This is more in line with observations about the growth of the middle class in PNG (Gewertz & Errington, 1999), the role consumption has in the formation of national identities (Foster, 2002) and associated financial selves (Cox, 2014).
As with other urban centres in the South Pacific, churches, employment, neighbourhood markets and educational institutions have become important spaces where youth and adults of different backgrounds have come together (Demian, 2017; Goddard, 2017; Spark, 2017a, 2017b). Various organisations based in Port Moresby enable and require the extensive, regular mixing of people from different parts of the nation. Employment and education are the most obvious examples. Even then, regional and wantok associations are evident across broad sectors and within particular organisations. Over numerous trips for this research, we have made a point of asking taxi drivers where they are from, and the answer has almost without exception been the Western Highlands. We have also witnessed obvious enclaves of working relationships in tertiary institutions and government departments drawing on wantok connections and associated principles of obligation and reciprocation. While the indication of such groupings in organisational settings not attuned to supporting this systemically is indicative of the power of such connections, there is more to be gleaned about identity in considering pursuits that are more obviously voluntary. Two common group activities in Port Moresby come to mind here—sport and church, in that they are usually discretionary activities, and play an important role in personal identity formation.

Sporting teams are an interesting example to consider in urban environments. Crowdy played both cricket and Australian rules football in Port Moresby in the early 1990s, and has had a long association through family with netball. In those sports, and anecdotally in others as well, most teams take on regionally focused membership. There are cricket teams known for their predominantly Hula focused membership (Raukele), football teams with West New Britain members (Port Moresby Colts) and netball teams with Paramana membership (Paramana). To be from Paramana, but to play for a team associated with Hula is charged to some extent, whether it be the politics of regional inter-marriage or family tensions. Even if one had no underlying reason, the decision would be viewed by others as being somehow loaded with intent. Further, particular sports, for various reasons linked to colonialism no doubt, have regional associations. Australian rules football is predominantly played in the islands (West New Britain and New Ireland in particular) and Central Province. While Foster (2006) and Guinness and Besnier (2016), amongst others, have discussed the politics of sport in PNG and Fiji respectively, and the complications as people navigate these local, regional, national and international identities, new complexities are emerging that require further exploration.

Whereas sports continue to bridge kinship or place-based identifications, churches navigate these identities differently. Indeed what became clear to us speaking with members of different churches involved in creating and sharing music was that such regional and wantok connections were not present explicitly. At the same time, the way that music was being shared, and the way data was being shared and used, appeared to draw from wantok related practices of obligation and reciprocity. We would like to suggest that data enabled practices through social media connections and file sharing (via the internet or local hotspots) are key elements in the sustenance of such interest driven groups. Private, closed groups are part of this, seen particularly in our work through the use of WhatsApp. Mobile phones, and in particular data-driven forms of internet communication (so not phone calls or SMS), keep people in contact outside of the physical church space itself. Closed groups obviously avoid the public scrutiny that social media opens up in more public ways (like Facebook), which might otherwise restrict people’s expression of opinions, information about location, events and so on.

These ideas about relationships, identity, status and meaningful mobility are evident, even intensified, when we consider groups based around music and churches, as those we have explored here. Churches are longstanding, relatively stable and respected institutions in PNG, with extensive associated musical histories and styles of significant cultural value (Van Heekeren, 2011; Webb, 2015). Modern churches such as the charismatic and Pentecostalist ones our groups have been involved in provide opportunities to both align with, and participate in, cultural institutions that carry considerable
kudos and connect across the complex regional, denominational politics and histories of more established churches. Music is critical to this; and the openness of these new churches to recent, high profile gospel music such as that produced by Hillsong is important. In addition to people in town having examples of international and local gospel music on their phones, a number of young women we spoke to in the village of Irupara, when asked about the music they had on their phones, stated they had a variety of gospel music, and clearly expressed their preference for this over other types of music. Papua New Guinean bands such as Covenant Creed, with their international connections, professional musicians, producers and equipment, represent powerful new ways of being and identifying in urban Melanesia, and their use of smartphones as critical tools for publicity, sharing and connecting is a critical part of their functioning. In the case of the churches involved in gospel and religious music, data often mediates this practice and socialisation of music and video files or metaphorical media object, as well as acting as a potential conduit for communication.

6 | UNDERSTANDING URBAN IDENTITY THROUGH MUSIC

Throughout this article we have demonstrated that music—and forms of music sharing—are also playing an important role in the relationships of reciprocity and obligation. As we saw in the case of Esther, her interest in metal music involved the maintenance of relationships with others who shared her interests. Through the management of her access to enough data to keep her connected to others who were into metal music, she could expand her collection of music when they returned from a trip to Australia with new music. Esther's gifting or sharing music from her collection through WhatsApp or platforms such as SHAREit enabled her to create relations of obligation and reciprocity by maintaining her own extended wantok networks. Church members also employ music sharing as a way of forging and maintaining relationships, often pooling resources from someone's capacity to record on their phone (using battery) to share over WhatsApp (using data) and then share via Facebook (employing data infrastructures such as wifi in the workplace).

Whilst the existing system of connections within kinship and the wantok system generally retains its importance in urban PNG, there are important dimensions of cultivating interest-driven and other relationships through music sharing worth noting. These may include developing relationships with others to enhance one's sense of power or status or to explore forms of identity—even empowerment—that do not exist in traditional kinship relationships. For example, in a recent article focused upon Facebook use in urban Fiji, Karen Brison (2017) explores the ways in which people cultivate relationships on sites like Facebook to develop alternative forms of status and value. Brison's urban-based study of Facebook, education and churches frames these practices as part of a wider process of urbanisation and the evolution of class stratification in Fiji that offers alternative forms of respect and status for younger women and others who do not hold traditional positions of status and hierarchy (see also Macintyre, 2011). Some of these practices reflect what Tacchi et al. (2012, p. 536) have described as ‘meaningful mobility’ wherein mobile phones and other technological practices ‘must be understood within their everyday uses and settings, in order to understand the range of ways in which they contribute to social spaces, and what part they play in social and economic meaning-making’. Esther, for example, enjoyed the connections she created with urban Papua New Guineans and others based upon her affinity for, and expertise in, metal music, credibility she does not necessarily enjoy in her daily job as a young woman or in her family as a daughter who has obligations to her parents. As discussed in recent work by Demian (2017) and Spark (2017a, 2017b), urban centres like Port Moresby require navigation of gender norms and expectations. Music and smartphones become tools, for many women, in this changing terrain.
We also see that cultivating alternative networks is sometimes avoided, given the widely acknowledged notion that it is difficult to ‘cut’, in the words of Strathern (1996), the network. For example, in the case of music sharing, we see DJs and producers who are in positions of power in the industry withholding songs and other information. These resonate with previous patterns such as hiding money or, more recently, withholding data in order to sidestep systems of reciprocity and obligation. Maintaining boundaries around the inclusion of new people in closed WhatsApp and other social media groups also operates to keep people outside networks of reciprocity and obligation. Many Papua New Guineans are navigating how closed social media groups based on interests such as those we have examined here bring communication into homes, on buses, back into workplaces and schools, and across wider geographical boundaries (Webb & Webb-Gannon, 2016, 2020). But as we see, the constitution of groups moves beyond kinship, as the regional diversity of groups in Port Moresby clearly demonstrates, with the widening held together using levelling techniques characteristic of the wantok system.

7 | CONCLUSION

In her work with women factory workers in Beijing, Cara Wallis (2011, p. 472) sets out to ‘temper the recent techno-euphoria and neo-determinism that have surrounded the mobile phone and draw attention to how such discourses can elide deeply entrenched inequalities’. Emphasising the complexity of positions and contexts, she argues that it is the dynamics of change underway that should be an important locus for analysis. Data ecologies and urban identity provide such a locus, and as new possibilities for access (new data international data cables, for example) emerge, so too do changes in urban Melanesian musical practices and identities.

We are cogently aware of this dynamic from Australia and the UK where we are currently writing this, and from where we do not encounter a data ecology that requires engaging with SHAREit or TubeMate. This is not because we do not listen to as much music or watch as many videos as the people we have spoken to in Port Moresby. It is because we are part of the data-as-essentially-free population for which smartphones and their Google/Facebook-based infrastructure are set up. If you have downloaded and used the SHAREit app, you do so because data is expensive; you can have two handfuls of betelnut and a movie. Added to this is the state of local infrastructure. Even if you had access to gigabytes of data, the network is so slow that SHAREit offers a much more efficient form of transfer. If you have to use TubeMate, which is actually not available from the Google Play store as it clearly breaks conditions under which we agree to use YouTube, again it is because data is expensive. In Port Moresby, we obtained TubeMate through SHAREit so we could join this developing, everyday aspect of the urban Melanesian communicative ecology. People in PNG do not use the music streaming platform Spotify, as both of us as authors do, because it is expensive and because of the lack of credit card availability in PNG. Importantly, however, it is also because a good deal of the music (especially new) that Papua New Guineans listen to is not available on such services.

Data ecologies enable us to add to work on the broader social dynamics that are changing the ways in which urban identities are formed in PNG, as part of the project of nation building that Foster (1997, 2002), Gewertz and Errington (1999) and others highlighted well before the arrival of data. It facilitates these shifts, solidifying connection and relationship building through music sharing and listing. Our work reinforces observations about local use of technology, embeddedness in existing practices, and aspects of the wantok system being incorporated into the use of such technology (Wilson, 2019, for example). Yet it is the tension between the fundamental data needs for smartphone apps to operate, and the cost of it in PNG, that reveals the political reality of tensions between egalitarian, levelling
ways of being that lie at the core of the wantok system and Melanesian societies more broadly, with the capitalist inequality that is inherent in the commerce of Google/Facebook/Spotify. While smartphones and app use enable and sustain connections between different groups, from churches, to interest around music genres, we should not lose sight of how these urban identities also connect into the same transnational commercial software infrastructure we use daily in academic and personal circumstances. The point is, however, the particularly uneven local operation of this that sustains, even widens, social and financial inequality when viewed at a global scale. Smartphones expose the operation of data as a conduit into transnational capitalism at the opposite end of the communicative ecology that garamuts occupy (slit drums used for messaging, see Watson & Duffield, 2016). What is interesting, and perhaps most unexpected for us, is how this power imbalance manifests in the daily interactions of and with our Papua New Guinean participants, as they navigate their changing data ecologies. That is one of the more unsettling, but very real characteristics of identity in the modern urban Pacific.

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ENDNOTES
1 Interviewee names have been changed throughout.
2 Android phones are so dominant in the Global South, PNG included, that discussion of the Apple iPhone and iOS is, at the moment at least, irrelevant.
3 Kin relationships based loosely on common language.
4 Almost every person we interviewed in our study between 2015–2019 had experienced mobile phone theft, often more than once.
5 In PNG, in 2018, 375-mb of data that would last for 7 days would cost K20 (AUD$9). The equivalent at the time in Australia was 2-GB for more like AUD$7. At the time, the minimum wage in PNG was K3.50 (AUD$1.50) and in Australia was AUD$18 per hour. At the time, GDP in Australia per capita was USD$56230, and in PNG USD$2220 (a factor of 25).
6 See Kraemer (2018) for examples in Vanuatu around the exchange of mobile phone credit connected to existing practices such as the exchange of yams, mats, armbands and food.
7 These cards provide a user’s account with a certain amount of credit in Kina, which can then be divided for use as data, or phone and SMS messages.
8 One interesting aspect, but beyond the reach of this article, is the increasing amount of social relationship data held by these corporations, along with associated location information.
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