New Ideas for Digital Affordability

Is a Paradigm Shift Possible?

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Summary:

Affordability is an important and recurrent issue in telecommunications and the digital economy. With the rise of the Internet and mobiles, there have emerged a range of new ideas about addressing long-standing affordability issues. Yet it has been difficult for the interested policy actors to forge such ideas into a new paradigm, and even harder to gain a new consensus and public support. Accordingly, this paper considers this policy impasse, analyses leading directions, and argues for the importance of arriving at a new carefully coordinated and unified approach to affordability.

Introduction

Internationally, affordability in telecommunications and the digital economy can fairly be summarised as a contradiction.

On the one hand, the dynamism of technological developments, and the socio-cultural innovations that accompany them, promise new ways to deal with affordability issues — building on the industry changes, underlying economics and pricing movements, and products and services that have provided consumers with an unparalleled range of communication and media options.

On the other hand, social exclusion remains a reality and in many places has worsened with economic conditions and restructuring (Betti, Gianni 2013; Healy 2011; Phillips, et al. 2013; Taket et al. 2009). Ironically, the new place of digital technologies in everyday life means that lack of access to these poses real barriers for social participation. A 2013 Australian report, for instance, found that in the most excluded areas (following the approach in Abello et al. 2012):

> Children within these households do not have access to the same resources as average children throughout Australia, with much lower incomes and far lower likelihood to have access to the Internet or a motor vehicle. (Phillips, et al. 2013)

In our contexts, then, affordability of digital technologies remains a compelling, urgent issue — and it now has new dimensions that we are still in the process of grasping.

Disappointingly, affordability in telecommunications and associated digital technology policy remains so fragmented and poorly motivated that it is no stretch to describe the situation as an impasse. In this paper, I seek to explain this dilemma in telecommunications affordability, why it has come about, and argue that we urgently need to address this via a unified approach.

The burden of the past in telecommunications affordability

What was thought of the essential telecommunications service – a fixed-line telephone-cum-telecommunications service entrenched as a 'social fact', to use the concept of Émile Durkheim, recently used by Rich Ling to describe mobile phones (Ling 2012) — merited systematic state and industry attention to ensure that the accepted 'standard' service was genuinely universal across the population. The affordability of this standard service became a concomitant policy matter. What was the point of ensuring telecommunication was available 'clear across Australia' – in historian Ann Moyal's evocative phrase (Moyal 1984) – if a household could not afford to pay the connection charge and rental, and cover the requisite call charges?

Yet, historically, it can be argued that the affordability dimension of universal service in telecommunications was something of an after-thought or add-on. The argument regarding universal service was that the telephone had become an essential service, so if the Australian public utility or enterprise (pre-1991) or market (post-1991) could not deliver it, then the government should devise a way for this for to occur. Through the 1990s, the concept of standard telephone service broadened into a standard telecommunications service. Broadly, affordability had been an explicit feature of the North American concept of universal service, but not the distinctive European concept of public service (OECD 1991). Elsewhere in the world, affordability was addressed in a range of ways.

As universal service emerged as a central concept in telecommunications reform in the 1990s to address issues such as rebalancing of tariffs (Milne 2000), affordability become more widely discussed. Eventually it became widely accepted as a specific part of universal service. In his influential 1995 paper for the OECD, for instance, Patrick Xavier suggested that 'universal affordable access' (OECD 1995: 136) could be one of the sub-components of universal service that should be tackled by 'distinct, realisable and measurable targets for its sub-components' (OECD 1995: 135). By 2010, affordable pricing was a key feature of International Telecommunications Union basic texts and policy approach to telecommunications and broadband (International Telecommunications Union 2010).

Despite this recognition and adoption of a broad notion of affordability at an international level, I would argue that in many ways affordability was never properly incorporated into universal service – rather it was grafted onto this concept (Wilson and Goggin, 1993). Moreover, in hindsight it could be argued that there was reluctance to make affordability an integrated feature of telecommunications policy. Affordability is often invoked as an issue, but dedicated and comprehensive policies and targets and evaluation of the sort Xavier suggests have not eventuated. There are many reasons why this has occurred, not least the complexity and difficulty of addressing affordability issues.

For the past two decades in which telecommunications reform has continued in earnest, affordability has languished even further as the poor cousin – to put it aptly – of policy. Within formal telecommunications policy, affordability has been an increasingly difficult issue to advance and have taken seriously. The range of measures developed and adopted internationally through the 1980s and 1990s in OECD countries, including Australia, featured measures such as price controls, concessions on equipment and services, and governmental allowances or payments to assist with connection and rental charges on fixed-line, standard public switched telecommunications services.

A positive outcome of telecommunications reform, the liberalization of markets, and competition has been the easing of price pressures and expansion of products and services that have offered some financial respite for consumers and additional options for managing telecommunications as part of household expenditure. On the part of many policy makers, industry, and members of the public, a typical response to affordability concerns has entailed the argument that affordability has eased due to such taken-for-granted outcomes of competition. Accordingly, there has been less support for specific affordability measures within telecommunications policy – and there is even a palpable sense that affordability is no longer a key policy issue.

In tandem with the evolution of telecommunications reform, and the perceived improvement of affordability of standard telecommunications services, has come a fundamental shift in the place of telecommunications itself. The telephone, and telecommunications in general, has taken its place among a wide, bustling, complex ecology of media, communication, and information services. In everyday life, there is much evidence that charts the 'polymedia' (Madianou and Miller, 2012), or eclectic, pluralistic media that shape and support our everyday life. Significant numbers of consumers have substituted mobile phones for fixed-line telecommunications. New services that have emerged over the last two decades – especially the Internet and many of its applications and services – have become as important, or more important, for consumers. Many other media and information services – television, radio, music, advertising, print media – are provided by telecommunications,

Internet, mobiles, and digital technologies. As we know, particular digital services have experienced a relative drop in price, however the overall telecommunications, media, and digital economy has been maintained or expanded, and aggregate consumer expenditure on such services remains a significant part of household budgets.

With the two key technologies of Internet and mobiles have also come new initiatives in affordability for old problems, as well as new imperatives for affordability from the new essential services of today.

Mobiles

Internationally, mobiles have been associated with a wide range of initiatives in affordability.

In the first place, mobile networks allowed 'leap-frogging' – areas or households not yet connected to the telephone could be connected via cellular mobile networks, without the need for costly, time-consuming, and often challenging trenching, line-laying, and wireless workarounds, such as the celebrated Australian DRCS (Digital Radio Concentrator System; a radio relaying of telephony signal between a household and the nearest landline network point). Over time in many markets, mobile networks also offered alternatives to fixed-line network service for many consumers – providing other, competitive options for managing cost.

As they gained better data capabilities – with 2.5G, 3G, and 4G mobiles – mobiles become a major mode of data and Internet access. The emergence of Internet, apps, media, and data on mobiles has been most welcome, not least for the options such data capability supports for managing affordability. Yet, at the same time, reliance upon mobiles for Internet and data then raises the kind of affordability issues previously associated with Internet, computers, and online services. This is an exciting time, with mobile technologies and services that offer new affordability options – yet also usher in new kinds of affordability concerns. So it is worth exploring the various faces of mobile affordability in a little more depth.

Perhaps the most simple and enduring impact of mobiles on affordability has been pre-paid accounts: the ability for a consumer to purchase mobile phone service very cheaply via a SIM card. This has revolutionised telecommunications in everyday life, especially for cohorts of poor, low-income, working-class and middle-class consumers (Barrantes and Hernan 2007). Strikingly large numbers of consumers with precarious life conditions, scant work, and little money, resources, or wealth, have been able to avail themselves of mobile phones for voice communications, text communications (notably SMS), and, increasingly now, mobile Internet — not to mention a wide range of other media, communication, and information services (news, music, entertainment, games, and so on). The age of pre-paid mobiles,

however, opens up as many questions about affordability, as it provides new modes of connectivity. Here, policy makers have been slow to systematically identify and address these issues.

For instance, many low-income consumers – and especially the very poor and other marginalized groups (homeless people, for instance) — but also other socio-demographic cohorts (domestic workers, migrant workers, and their families) – rely upon pre-paid mobile service. This makes it difficult to map and understand the modalities of connection, use, and management of their mobile and associated finances in their daily lives.

Clearly, pre-paid mobile use allows people to restrict their own calls, text messages, apps and media consumption to suit their budget. There is little systematic research on this, however, so we do not know much about to what extent people with pre-paid mobiles are effectively disconnecting themselves, or, if technically connected (for example, in possession of an active SIM card with associated phone number, and device to use it with) they go for periods without being able to afford recharging their mobile phone service. Or, worse still, go through periods where they cannot afford mobile service. Or their access to a mobile phone, or the conditions of the mobile, or the lack of security in their personal circumstances, means that they are unable to afford a mobile phone for long period of time, or lost or have it stolen and cannot afford to replace it.

From other sectors, such electricity, gas, and water, where coin-operated meters were available over twenty years ago (in the UK, for instance), consumer advocates have raised concerns that such 'pay-as-you-go' options can mean people effectively disconnect themselves. If one is unable to pay one's bill, and is on a post-paid plan (two part tariff of connection and rental plus usage charges), the utility or service provider has a set of policy and procedures they have adopted – as well as the overarching regulatory and legal frameworks -- by which credit management, hardship measures, customer information and negotiation, and finally disconnection occurs. In the case of pre-paid mobile service, like coin-operated electricity meters, or other kinds of pay-as-you go utility and consumer services, if one is not able to afford the up-front charge to purchase credit in advance, the consequence is that the service halts – and cannot be used. Here it would be interesting to compare the risk management strategies of the service providers, and of customers, in relation to choosing pre-paid mobile services – an important area where we lack research.

If usage patterns of pre-paid mobiles raise all manner of questions for affordability, it is very likely that this is even more so in the broader area of mobile Internet usage. There is clear evidence now about the importance of mobiles for Internet access for a wide range of consumers and socio-demographic groups. Yet we have little research that delves into the complexities of understanding the kinds of devices, connections, applications, and services

that low-income consumers use, in particular, and what issues and opportunities these pose for affordability.

In Australia, it has largely been the charitable, NGO, and not-for-profit sector, in concert with some telecommunications providers (especially Telstra, through the Low-Income Measures Assessment Committee or LIMAC) that have provided information and research, brokered and forged often creative but typically piecemeal and partial (as well as provisional) solutions to the new affordability problems of the pervasiveness of pre-pay mobiles, and to the growing role of mobiles for Internet access (LIMAC 2012). Research is beginning to emerge, not least through the LIMAC process and ACCAN grants schemes (for instance, Justine Humphry's 2013 project *Homeless and Connected*, which explores mobile phones and mobile Internet in the lives of families and young people experiencing homelessness). Now systematic government policy and action here is needed to put such initiatives on a sustainable, comprehensive footing.

Internet

The Internet is the other signature technology that has fundamentally reshaped the landscape of telecommunications affordability. The Internet is many things. Like mobiles, it has a Janus-faced role.

It is a medium in its own right, with a rich, complex, interwoven layer of networks, protocols, devices, code, applications, and user cultures. It is also at the heart of transformations in the digital economy, as it combines with, and often becomes crucial to, many old and new media, communication, and informational forms.

In the realm of affordability, we can identify the fact that the Internet, through Voice over Internet protocol (VoIP), and alternative communication channels (from messaging and email, through Skype and video communications, to social media), has offered options for users that are cheaper than alternative services offered by telecommunications providers – cf. interesting findings in recent Japanese studies, indicating consumer willingness to pay to retain voice communication services (e.g. Nakamura 2013). Through the features and affordances, business models and billing approaches to such services, the Internet has also offered new ways for consumers to manage their finances and household budgets, as well as credit management.

Affordability, as noted long ago by telecommunications researchers such as Maureen LeBlanc, is a complex phenomenon (CTN 1995). It is not solely about income, price, and expenditure. Affordability is a dynamic interplay between people's lives, money, services, and systems (cf. Levin 2010). Thus options to manage the 'lumpiness' of money flows — until payday or benefits arrive; facing multiple bills all at once; dealing with unforeseen high

bills ('bill shock'); the impact of security deposits; and so on — are at the complex heart of telecommunications affordability. Here the pervasiveness of the Internet and its wide range of new communicative and media options provides important advances.

As well as providing alternative channels, options, and tools for consumers to address telecommunications affordability, the Internet is a new topic in affordability in its own right. As many commentators, industry players, and even some governments have observed, the Internet is an essential service in its own right. Available national data shows high rates of Internet activity among Australian consumers. In December 2013 there were a total of 12.397 million Internet connections, according to Australian Bureau of Statistics figures (ABS 2014b). Of the total, most were broadband connections (12.192 million), with only 205,000 dial-up Internet connections (ABS 2014b). Of the broadband internet connections, the lion's share represented by mobile wireless connections (at 6.04 million, slightly down from June 2013 figures), followed by Digital Subscriber Line (DSL) connections (4.898 million), then cable (944 million), fibre (167 million), satellite (91 million) and fixed wireless (48 million) (ABS 2014b).

How this figures relate to household Internet access is very interesting, and underscores the distance yet to be travelled in achieving connections for those who wish them. The number of households with access to the Internet at home is on the increase, with an estimated 7.3 million households in 2012–13 – representing 83% of all households (up from 79% in 2010–11) (ABS 2014a). The figures are higher for households with children under 15 years (96% of such households had Internet at home) (ABS 2014b). Tellingly, for affordability considerations, Internet access is higher for households with greater income: 'In 2012–13, 98% of households with household income of $120,000 or more had Internet access, compared to 57% of households with household income of less than $40,000' (ABS 2014a). Proportion of Internet access at home varies with location, ranging from 89% in ACT to 78% in Tasmania (ABS 2014) – with further disaggregation by location, community, socio-demographics and cultural background likely to show even more places with much lower than the national average (cf. for instance Rennie et al. 2013).

In Australia, as elsewhere, it should be noted, when considering such figures, that there are significant numbers of individuals who do not use Internet, some from choice: noting by way of precaution the complex conditions by which choice is constructed and exercised, as the capabilities approach developed by Amartya Sen, Martha Nussbaum, and others reveals (Klein 2013); and others do not use the Internet because of affordability reasons, as the available evidence suggests.

Thus the well-founded concern – summarized in International Telecommunications Union (ITU) data and initiatives (International Telecommunications Union 2013a) as well as

highlighted in key fora such as the World Summit on the Information Society (ITU 2013b) – that affordability of Internet (meaning the whole necessary bundle of access, devices, and applications) remains a real barrier, alongside issues of literacy, training, availability, infrastructure, and social, cultural, and political conditions in which Internet use unfolds (for instance, see Rennie et al. 2013).

The new frontier of internet affordability now centrally revolve around the fast emerging preference for accessing internet via mobile devices. Internationally, the diffusion of Internet lags well behind mobile phones. ITU figures predict that mobile cellular subscriptions will reach 7 billion by end 2014, corresponding to a penetration rate of 96% (ITU 2014). In contrast, the estimated number of Internet users globally by end 2014 is almost 3 billion. Interestingly, this is only a little more than the estimated total number of mobile broadband subscriptions – predicted to reach 2.3 billion globally (ITU 2014). In Australia, at June 2013, there were 31.09 million mobile services in operation (up 3 per cent since June 2012) (ACMA 2013). Moreover, 42 per cent of adults accessed the internet via their mobile phone during June 2013 (compared to 32 per cent during June 2012) (ACMA 2013).

The stage has been set in Australia, and elsewhere, for Internet affordability to be incorporated into, and systematically related, to the universal service of telecommunications policy, as well as the prevailing norms of universal coverage of broadcasting and posts (Jaag 2014). Yet decisive action on this has not occurred.

The current standard telecommunications service definition adopted in 1997 represented a compromise concerning this. Various measures have been taken by Australian governments to fund Internet access, via extension to rural areas of dial-up access points, then wireless and satellite-supported Internet service (McElhinney 2001).

The National Broadband Network

The advent of the National Broadband Network (NBN) promised a masterstroke, rendering such incrementalist approaches in Internet provision irrelevant (see Darling 2012). Certainly, the Rudd Labor government, with Senator Conroy at the helm as Communications Minister, clearly articulated its plans for connecting all Australian households, businesses, and major organization and institutions with a high-capacity wireline broadband Internet service – with a fall-back to satellite and wireless service provision in the costly, hard-to-reach 'tail' of remote populations.

In essence, Labor felt it would provide a once-in-a-generation, quantum leap to affordability of Internet – and fast Internet, at that – by dint of its visionary NBN. As such, each citizen would now have an entitlement to broadband at a reasonable price:

> Under the Rudd Government's new national broadband network every house, school and business in Australia will get access to affordable fast broadband. (Rudd et al. 2009)

Like many areas of NBN, the devil lurked in the details. There were discussions about the key issue of whether consumers would pay the same basic price for NBN connection and service, regardless of their location. This is the classic issue of cross-subsidy, which historically underpinned the evolution of universal service in telecommunication; and the terms of its rebalancing was fought out in the long wars of telecommunications reforms. Many telecommunications policy analysts had assumed the issue of cross-subsidy, along with atavistic institutions such as government provision of communications infrastructure, would have been long put to bed, the Australian epitaph written with the passage to full competition symbolically completed in the 1997 *Telecommunications Act.*

No such luck, of course. Instead, the market's failure to provide broadband service where it was needed, at the speeds and data allowances desired, by 2010 saw government's role in creation, provision, and regulation of next-generation networks become a hot issue (Gulati and Yates 2012; Rajabiun and Middleton 2013). Australia was the darling of many telecommunications conferences, for its bold if vague NBN plans. What transpired in Australia has been a long, costly, partially reversible implementation of the NBN.

The questions raised by some in relation to affordability were not ones that Senator Conroy and the Rudd and Gillard Labor governments wished to hear, let alone entertain, in the period in which they felt that the NBN was shortly about to transcend such matters. Yet these are crucial questions. As Australian Communications Consumer Action Network (ACCAN)'s Pavilidis and Gadir note:

> it has become evident that a strategic challenge for generating policy change on affordability is the belief in policy-making circles that the rollout of NBN infrastructure is sufficient to address affordability concerns (even for low income consumers) in the communications market. The empirical reality does not support this belief. (Pavilidis and Gadir 2013)

The NBN plans have been reconfigured by the current Coalition government since it took office in September 2013. Responding to the latest release of ABS figures showing only 83% of Australian households with access to Internet at home (ABS 2014), Communications Minister Malcolm Turnbull expressed his view on his blog that 'affordability is the biggest barrier to broadband access in the home' (Turnbull 2014). For Turnbull, the corollary was that investment in the NBN needed to be minimised to keep Internet prices as low as possible:

> If one important policy objective of the NBN is to increase access to the Internet, it is absolutely critical that the capital cost is no more than is absolutely necessary. As I said in the House today, the consequence of an over capitalised Government telecom monopoly is inevitably going to be higher prices, which will mean that far from increasing access to the Internet, we will see more and more Australians priced out of Internet access. A broadband policy which has social equity as an objective must have affordability, driven by prudent levels of investment, as the highest priority. (Turnbull 2014)

The positive aspect of this Coalition stance, as enunciated by Minister Turnbull, is that the government is taking price seriously. Its Labor predecessor, by contrast, was reluctant to address the growing evidence that given the rising cost and necessary investment to achieve the NBN rollout, the wholesale price, and so the likely retail prices, for NBN household service was likely to be much higher than previously hoped. However, while such scepticism and careful management of NBN investment and costs is critical for keeping eventual consumer prices low, affordability issues will remain. As yet, the Coalition has not been prepared to acknowledge and address this. In this sense, it continues a disappointing aspect of broadband affordability policy which took shape under its Labor predecessor. Thus Robert Morsillo's 2012 judgement on NBN remains pertinent:

> While NBN will in principle resolve the availability issue, it remains to be seen whether increased retail competition in and of itself will overcome affordability barriers for low-income households who may have to resort to less capable wireless options instead. (Morsillo 2012)

Interestingly, some of the international attention paid to government's catalytic role in next-generation infrastructure (even, or especially, in fostering public-private partners) has waned. In its place, the novel initiatives have come internationally from the private sector, especially in relation to high-publicity goals of "connecting the world'. For instance, in October 2013, a number of technology companies, including Google, Lucent, Facebook, Intel, Yahoo!, Microsoft, and Ericsson, joined with US, UK, and Swedish government agencies, as well as not-for-profit foundations, to launch the Affordable Internet Alliance. Specifically the Alliance aims to tackle 'artificially high Internet prices in developing countries', to 'help access prices to fall to below 5% of monthly income worldwide, a target set by the UN Broadband Commission' (AAI 2014). Certainly, this is a laudable goal. However, if one turns to the Alliance's *Policy & Regulatory Best Practices*, there is little engagement with the complex issues of affordability beyond a general market-based approach.

The document starts encouragingly enough with the statement that the 'Alliance is specifically focussed on affordability as a centralized issue that can most benefit from a

coordinated effort' (AAI 2014). However, the Alliance is clear that it sees 'open and competitive markets' as the 'most effective way to drive reduced delivery costs, affordable consumer pricing, and new innovation' (AAI 2014). It does acknowledge alternative approaches, saying '[w]e are supportive of other approaches which are successful in achieving the same affordability targets' (AAI 2014). However, other than 'reasonable effort to systematize data collection of key indicators to measure effectiveness' (AAI 2014), there is no other recognition that the achievement of a 'liberalized market with an open, competitive environment' AAI 2014) will most likely still leave many issues of affordability unaddressed (cf. Gasmi, et al. 2013; Gulati and Yates 2010; Henderson, Gentle and Ball 2005; Weidner et al. 2010)

As well as the overarching issue of affordability of Internet connection and use, there are many other examples in the Internet, concerning which affordability has not been seriously or systematically worked through. Consider, for example, messaging and chat programs. Stand-alone messaging programs (such as Microsoft Messenger) have been with us since the 1990s. More recently, messaging has become incorporated into other important consumer platforms, such as Facebook and Twitter. There is anecdotal as well as sporadic research evidence to suggest that people use such social media platforms (and increasingly mobile chat) as a cheap alternative to mobile-based SMS. This was something observed some time ago with African use of mobile software such as Mxit (see Ekine 2010), and now across a range of countries, not least China (Wai-chi Chu 2012), where the migration of Internet-based messaging plus new social, mobile media platforms, offers cheaper options than SMS. Increasingly, a range of messaging platforms articulate with mobile-based communications, allowing SMS to be sent from Skype, or Apple Messages, whether for free, or at least more cheaply than from mobiles.

This example reminds us that mobile Internet is a much more far-reaching and complex development that a simple convergence between 'the Internet' and 'cellular mobiles'. Rather, we see a very interesting set of developments at the intersection of wireless Internet and mobility. Indeed, a mobile Internet development that has important implications for affordability is further discussed under the rubric of 'public WiFi'.

Public WiFi

Over a fifteen year period, WiFi has established itself as an important technology. 'Private' WiFi is widespread in households, and underpins much of the developments in convergent, digital, media – think, for instance, of the new Internet and mobile-based modes of accessing, consuming, and broadcasting television, where digital television (as officially

conceived by the television industry) has been fundamentally displaced by Internet and mobiles (especially smart phones and tablet computers such as the iPad) (Goggin 2014).

There is little or no research on whether households face affordability issues purchasing good WiFi technology for their households; yet a lot of assumptions, visions, and plans about digital technology assume households are suitably wired. In the contemporary media-intensive 'smart' home, there surely must be 'information have-less' and 'information have-not' as well as households well able to complain about the 'information glut' (Andrejevic 2013) that their overabundance of wireless and wireline connections, and multitudes of devices affords them. There also remains significant community based WiFi in Australia, largely escaping mainstream public and policy notice. It is most interestingly discussed in Katrina Jungnickel's 2014 account of WiFi communities (Jungnickel 2014). Such WiFi communities represent but one face of the wide democratisation of technologies represented in a range of movements associated with participatory, do-it-yourself (DiY), and maker communities (cf. Poblet 2013).

It is important to acknowledge and bring such household and community uses of WiFi into the discussion, before turning to the topic of public WiFi – the subject of a panel at the November 2013 *Emerging Issues in Communication Research & Policy* conference, convened by the News & Media Research, University of Canberra (for instance, see Potts 2014). Despite its pride in the CSIRO playing a pivotal role in the invention of WiFi, the rollout of the technology in Australia has been very patchy (Goggin 2007). Nonetheless, by 2014 there is now sufficient WiFi available in public places for the expectation to emerge that there is available, adequate quality Internet (albeit an expectation more often dashed than satisfied). There is anecdotal evidence that free public WiFi, in particular, provides a significant mode of Internet access and use to address or provide some relief for affordability challenges. Yet, the availability of WiFi has only slowly emerged onto the broader policy agenda– its importance highlighted, for instance, by 2013-2014 research focussing on WiFi as 'municipal broadband' constituting a 'civic infrastructure' (McShane, Meredyth, and Wilson 2014). The role of such public WiFi, if systematically rolled out, in addressing affordability issues remains to be adequately discussed.

Conclusion

For some years, Australian telecommunications policy concerning affordability has been in a holding pattern. Affordability is broadly recognised as a key element of universal service. Some policies are in place, to provide support, packages, and concessions. Telstra still remains the mainstay and custodian of such efforts.

The aspects of affordability measures that relate to longstanding support for telecommunications as part of government welfare benefits are now in jeopardy, following

the stringent fiscal approach taken towards low-income Australians in the May 2014 Federal budget. In all aspects, the world has moved on, yet affordability policy has not been updated in the comprehensive way that is now needed.

As charted in this paper, and evident across the research, policy discussions, and many initiatives, mobiles and Internet are essential services (Burkart, 2007). The issues they raise are complex – yet we know little about patterns of use and their interrelationship with affordability (cf. Holt and Galligan 2013). Efforts to address affordability issues concerning them remain at a very general level, around the world. There are policy efforts across different government portfolios, industry participants, research institutions, and in the NGO and not-for-profit sector. However, these are not brought together, in a coordinated or unified policy framework.

In the Australian context, we have the example of the lack of integration between national plans and policy concerning NBN, and mobile Internet and wireless networks (Middleton and Given 2011). To his credit, Minister Turnbull has often drawn attention to this gulf between NBN as the main solution for Australia's broadband, and the reality of widespread reliance upon mobile and wireless technologies. When it comes to affordability, this is most demonstrably the case. Affordability *is* a pressing issue in telecommunications, and deserves a comprehensive framework to grasp its contemporary realities and address the issues they raise across the many policy and industry settings.

Acknowledgements

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