

DESERT KNOWLEDGE CRC

The Working Paper Series

The Community Phone Project:
An overview

Andrew Crouch

Working Paper

46

2009

The Community Phone Project: an overview

Andrew Crouch



Contributing author information

Mr Andrew Crouch is Research Officer, Telecommunications with the Centre for Appropriate Technology.
Desert Knowledge CRC Working Paper #46.

Information contained in this publication may be copied or reproduced for study, research, information or educational purposes, subject to inclusion of an acknowledgement of the source.

ISBN: 1 74158 131 1 (Web copy)

ISSN: 1833-7309 (Web copy)

Citation

Crouch A. 2009. *The Community Phone Project: an overview*. DKCRC Working Paper 46. Desert Knowledge CRC, Alice Springs.

The Desert Knowledge Cooperative Research Centre is an unincorporated joint venture with 28 partners whose mission is to develop and disseminate an understanding of sustainable living in remote desert environments, deliver enduring regional economies and livelihoods based on Desert Knowledge, and create the networks to market this knowledge in other desert lands.

Acknowledgements

The Desert Knowledge CRC receives funding through the Australian Government Cooperative Research Centres Program. The views expressed herein do not necessarily represent the views of Desert Knowledge CRC or its Participants.

For additional information please contact

Desert Knowledge CRC

Publications Officer

PO Box 3971

Alice Springs NT 0871

Australia

Telephone +61 8 8959 6000

Fax +61 8 8959 6048

www.desertknowledgecrc.com.au

© Desert Knowledge CRC 2009

Abstract

This paper outlines the development and implementation of the Community Phone as an alternative public telephone for remote settlements of Aboriginal and Torres Strait Islander people, in the broader context of telecommunications services in remote Australia.

The characteristics of the Community Phone service are described in terms of a generalised service model.

Supply and demand drivers for the service are discussed, with particular emphasis on its effectiveness as a publicly funded and managed service provided in response to the requirements of the remote settlements.

Finally, the paper reflects on how the success of the Community Phone Project experience might inform some aspects of the research being conducted by the Desert Knowledge Cooperative Research Centre (DKCRC) in Core Project 5 'Desert Services that Work'. This core project addresses five questions about the demand and supply of services to Aboriginal communities in remote desert areas, with a focus on demand responsiveness as a criterion for improving services. Although the Community Phone Project does not reflect a demand-responsive approach, it nonetheless provides some valuable insights into elements of successful service delivery.

Acknowledgments

The support and participation of the 142 Northern Territory and Western Australian Aboriginal communities involved in the Community Phone Project have been essential in ensuring its success to date.

Funding support by the Australian Government has made possible the implementation of services across the Kimberley and Northern Territory.

The development of the Community Phone and its evolution as a product and service has been characterised by a strong spirit of positive commitment and cooperation amongst the numerous Centre for Appropriate Technology (CAT), government and Telstra staff and those of other non-government organisations who have contributed to the project.

Major early contributions to CAT's share of this work have been made by Garry MacGregor, Ian Benjamin, Laurence Wilson, Alyson Wright and Steve Bailey. And the work continues through Jon Veverbrants, Jack Spencer and Lorraine Spencer.

Karen Flick, Judith Lovick-Andrews and Allan Horsley guided the project from the government's standpoint. Kevin Corby and Dennis Abbott of Tangentyere Council have also supported the project over a long period.

Helpful editorial guidance in producing this paper has been provided by Ruth Elvin and Steve Fisher.

Contents

- Abstract iii
- Acknowledgments iii
- List of shortened forms..... v
- 1. Introduction 1
- 2. Context 2
- 3. The Community Phone Project: a brief history 5
- 4. Characteristics of the Community Phone service model..... 10
- 5. Supply and demand: how good is the balance?..... 17
- 6. Project governance arrangements..... 22
- 7. Future directions..... 25
- 8. Summary and conclusions..... 26
- 9. Is this a desert service that works? 28
- 10. References 32

List of shortened forms

ABS	Australian Bureau of Statistics
ACA	Australian Communications Authority
ACCC	Australian Competition and Consumer Commission
ACMA	Australian Communications and Media Authority (formerly ACA)
BIA	Backing Indigenous Ability
CAT	Centre for Appropriate Technology
CPP	Community Phone Project
DBCDE	Department of Broadband, Communications and the Digital Economy (formerly DCITA)
DCITA	Department of Communications, Information Technology and the Arts
DKCRC	Desert Knowledge Cooperative Research Centre
ESO	Essential Services Officer
ICP	Indigenous Communications Program
NT	Northern Territory
PAKAM	Pilbara and Kimberley Aboriginal Media
PAW Media	Pintubi and Warlpiri Media
PIN	Personal Identification Number
PY Media	Pitjantjatjara Yankunytjatjara Media
TAPRIC	Telecommunications Action Plan for Remote Indigenous Communities
USO	Universal Service Obligation

1. Introduction

This paper outlines the development and implementation of the Community Phone as an alternative public telephone for remote settlements of Aboriginal and Torres Strait Islander people, in the broader context of telecommunications services in remote Australia.

The characteristics of the Community Phone service are described in terms of a generalised service model.

Supply and demand drivers for the service are discussed with particular emphasis on its effectiveness as a publicly funded and managed service provided in response to the requirements of the remote settlements.

Finally, the paper reflects on how the success of the Community Phone Project experience might inform some aspects of the research being conducted by the Desert Knowledge Cooperative Research Centre (DKCRC) in its Core Project 5 'Desert Services that Work'. This core project addresses five questions about the demand and supply of services to Aboriginal communities in remote desert areas, with a focus on demand responsiveness as a criterion for improving services. Although the Community Phone Project does not reflect a demand-responsive approach, it nonetheless provides some valuable insights into elements of successful service delivery.

2. Context

Until 1989, the provision of telecommunications services in Australia was structured largely as a government owned and regulated monopoly (Telstra Corporation and its antecedents Telecom Australia and the Postmaster General's Department). From that time onwards, successive Commonwealth governments progressively deregulated the Australian telecommunications market, and ultimately divested their majority interest in Telstra through a series of three tranches (1997: 33%; 1999: 16%; 2006: 34%). To strengthen political support for the final 2006 tranche, after which it would no longer retain majority ownership of Telstra, the government committed \$2 billion of the proceeds for investment in a perpetual Communications Fund, the proceeds of which were to be used to fund the future improvement of telecommunications services in regional and remote Australia.

In tandem with the privatisation process, a range of large and small competitive service providers were licensed for entry into the market. While their overall impact on the market has been significant, it has been felt much less in the regions than the urban areas, and Telstra remains most dominant in the remote areas.

Regulation

Telecommunications legislation is created by the federal parliament and administered by a Commonwealth Government department, which since 2007 has been the Department of Broadband, Communications and the Digital Economy (DBCDE). The regulatory function is shared by the Australian Communications and Media Authority (ACMA) and the Australian Competition and Consumer Commission (ACCC).

- DBCDE is responsible for administering the Commonwealth's *Telecommunications Act 1997* and the *Telecommunications (Consumer Protection and Service Standards) Act 1999*, and providing policy advice to the minister.
- ACMA is responsible for the regulation of broadcasting, the Internet, radio communications and telecommunications, including technical performance and safety standards.
- ACCC regulates competition, access arrangements and pricing for bottle-neck services in the telecommunications industry.

Cost of provision

An important aspect of the economics of telecommunications service provision is that for all the services (fixed-line, mobile), delivery and maintenance of the network infrastructure and the associated management services and databases represent the dominant portion of the overall cost of providing the service.

Limited role of local jurisdictions

State, territory and regional jurisdictions are large customers of the service providers, and while their local influence in this demand-side role is considerable, they are largely uninvolved in the (supply-side) management of the telecommunications environment. This is a historical accident which arose from the appearance of mass telecommunications on the scene post-federation, and is in contrast with most other essential services such as water, energy and transport, where state and local authorities have always assumed a strong operational and regulatory role.

Importance of telecommunications as a remote-area service

Telecommunications is nowadays regarded as part of an essential-service public safety framework, and its role as a lifeline, a business, and a social service increases in importance with remoteness because of the increasing relative cost and often unreliability of other forms of communication that rely on road, air or water transport.

Nevertheless, as remoteness increases, the lines of communications typically become thinner with increasingly sparse populations, and the profitability of service provision declines to the point where it is not commercially viable.

Public discourse on remote area telecommunications

In the decades following the formation of Telecom Australia (now Telstra Corporation) in 1975, there was an increasing specificity in the legislative requirement for the carrier to provide support for these unprofitable services. The legislation evolved from a general requirement in 1975 that Telecom must consider:

... the special needs for telecommunications services of Australian people who reside or carry on business outside the cities (Australian Government 1975).

Following amendments to the legislation in 1989 and 1991, the current 1997 legislation expresses this requirement most prescriptively in terms of a Universal Service Obligation (USO) and regime whose definition occupies 52 pages of the act (Australian Government 1997).

Initially, fulfilment of the special needs and USO was an internal responsibility of Telstra as the government-owned monopoly provider. However, change has been brought about by the gradual deregulation and commercialisation of the market and the fiduciary expectation of Telstra that it would operate as a commercial entity and not as a proxy of government in delivering unprofitable services to remote-area customers.

Over the past decade in particular, the rapid introduction and growth of new telecommunications-based services (notably Internet-related services) has given rise to the public perception of a widening gap between the Australian cities and the 'bush'. This perception, in the face of a relatively cumbersome and dispute-prone USO apparatus, which has struggled to adapt quickly enough to keep pace with the changes, has increased pressure on governments to respond directly by targeting telecommunications investments of their own to the remote areas. Several wide-ranging public inquiries have been conducted, in large part to determine the regional and remote needs and to advise governments accordingly on appropriate responses. These include the Telecommunications Services 'Besley' Inquiry 2000 (Besley 2000); the Regional Telecommunications 'Estens' Inquiry 2002 (Estens 2002); the ACA Payphone Policy Review 2003 (Australian Communications Authority 2004); the Review of the Universal Service Obligation and Customer Service Guarantee Review 2004 (Department of Communications Information Technology and the Arts 2004); the USO Review 2007; the Regional Telecommunications Independent Review 2008 (Glasson 2008).

Commonwealth governments have responded by introducing a number of targeted funding programs, including:

- Networking the Nation (1997–2004)
- the Telecommunications Action Plan for Remote Indigenous Communities (TAPRIC 2002–05)
- Backing Indigenous Ability (BIA 2007–10).

Aboriginal and Torres Strait Islander programs

While Networking the Nation was a broadly targeted program, TAPRIC and BIA have solely targeted Aboriginal and Torres Strait Islander community projects.

In 2008–09, a dual focus in targeted government funding is evident. The public dialogue frequently refers to a 98%–2% split in the Australian population, this being a broad estimate of the percentage who fall inside or outside the commercially viable market sector. The remote communities of course form a significant proportion of the 2%.

At the time of writing (April 2009), the Australian Government has recently announced its approach to creating a high-speed national broadband network to address the needs of the majority, coupling this initiative with a wide-ranging review of the existing telecommunications regulatory regime. It has also recently released its initial response to the Glasson Regional Telecommunications review, another major inquiry which had tendered its advice to Government late in 2008 on how to formulate an equivalent response for the other 2% (Glasson 2008). The response to Glasson incorporates an expanded Indigenous Communications Program (ICP) that subsumes much of the existing BIA Program.

As one specific item among many canvassed in the inquiry dialogue, public phones have repeatedly been identified as facilities that offer an essential but under-provided public service in remote Aboriginal and Torres Strait Islander communities (Besley 2000; Department of Communications Information Technology and the Arts 2002; Estens 2002; Australian Communications Authority 2004). The USO and its specific interpretation by Telstra as the designated Universal Service Provider provides for a payphone facility to be provided to all such communities with greater than 50 permanent residents. However, this interpretation offers limited access for residents of large communities, some of which have upwards of 500 residents, and offers nothing to several hundred of the smallest communities that have less than 50 residents. Thus the TAPRIC and anticipated BIA/ICP plans are seeking to fill the gaps left by the USO.

While this further attention and funding has provided some response to the shortfall of remote community public payphone services, rapidly changing technology in the form of increased mobile phone coverage and lower-priced satellite phone services has begun to make its own mark. These technologies are offering an alternative to the traditional public phone in some remote communities, echoing the well-established pattern in urban settings which has seen the collateral effect of a decline in the use of payphone services (Glasson 2008).

Access to services in remote communities

The large majority of Aboriginal and Torres Strait Islander people who live in urban centres have access (subject to income) to the full range of computing and telecommunications services, but the picture in remote communities is very different. In the very remote areas, particularly in central Australia, most phone services are provided on low-capacity radio infrastructure that does not have the speed per service to support effective data communications. Wired broadband to the home is therefore rarely an option, and services rely largely on satellite connections which are much less straightforward to implement. The overwhelming majority of computers in the remote communities are located in the offices of institutions such as police stations, schools, health clinics and local government (council) offices. The distribution of phones is not quite so one-sided, but varies widely. While some communities have a significant number of residential phones and a small proportion (in terms of numbers of communities) have mobile phone coverage, others have neither. This imbalance underlines the importance of public phone services as an essential element of service provision for people living in these remote locations.

This is the context in which the Community Phone Project (CPP) has developed since 2003.

3. The Community Phone Project: a brief history

Development of the CAT phone

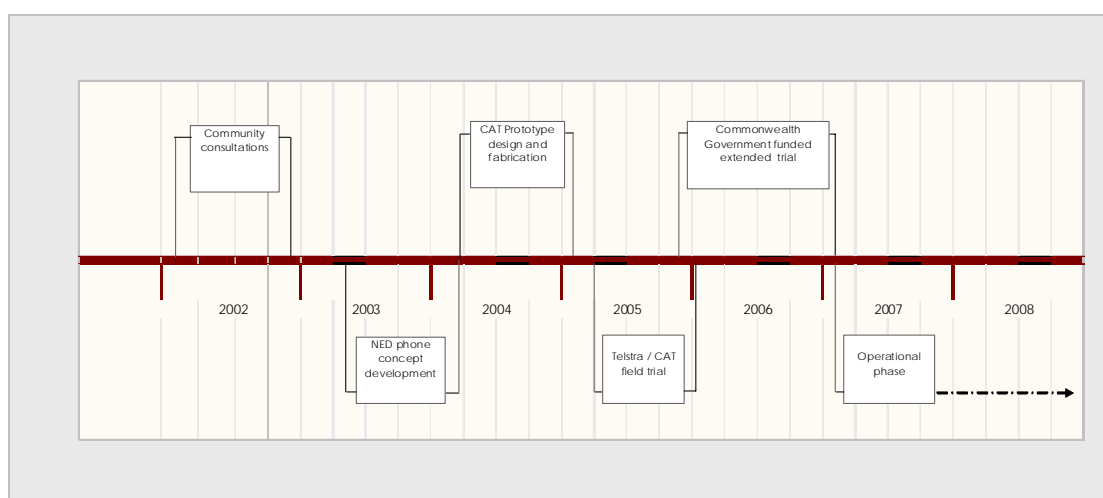


Figure 1: Community Phone development timeline

The Community Phone concept arose as a result of informal gap analysis in 2002 and 2003 by the Centre for Appropriate Technology (CAT) in response to concerns frequently expressed by Aboriginal community members in consultations with CAT staff about the limitations of their phone services. Public phones were frequently out of order, and where people had access to home phones – or even satellite phones in some cases – the owners of these were often faced with extremely large bills due to indiscriminate use of the phone by their visitors. There were a number of practical shortcomings in the Telstra coin payphone: its high implementation cost; vulnerability to coin jams and vandalism; and its high maintenance complexity and cost in the remote community context. Some of these shortcomings, and particularly the high maintenance cost, had been inhibiting factors in Telstra’s delivery of the USO payphone service.

Given the lack of other communications alternatives, safety considerations and the importance of effective communications to peoples’ livelihoods in general dictated that communities needed a public phone service that always worked.

It should be stressed that the telephone instrument is only the customer’s interface to the phone service – a relatively small part of the total service. The provision of a total service requires the phone to be connected into the local and wider public network transmission and switching infrastructure, supported by the administrative and billing systems associated with customer service call centres and card management.

Technically, CAT’s conceptual response to the need for an alternative public phone relied on two things:

- Access to a proven, readily available, mass-produced, low-cost telephone instrument to provide the core functionality. The key to the idea was repackaging this technologically complex but simple-to-use and well-understood device to make it more robust and easily maintainable.
- Linking the installed phones with an existing phonecard service to provide a simple mechanism for prepaid calling.

These were successfully achieved by CAT through the brokering of a cooperative commercial development agreement with Telstra.

The telephone instrument ultimately chosen was the T1000 telephone, developed by Thomson Telecom in Sydney and already widely sold as Telstra's telephone instrument of choice for the Australian domestic market. The packaging approach adopted by CAT was a robust fabricated stainless steel case, which provided mechanical and environmental protection for the T1000 instrument while interfering minimally with its electronic and mechanical design. The environmental protection included design features to prevent dust and water ingress to the sensitive internal parts, and to permit easy cleaning. The robust CAT phone, or 'NED' phone as it was initially dubbed (due to its likeness to Ned Kelly's armour) incorporated a rugged external handpiece – a stock item identical to that used on existing payphones, and mechanical keys to contact and extend the T1000 keypad functions outside the case. The keys were designed to provide generous tactile feedback for use by visually impaired people or for use in the dark. While the mechanical design represented a major component of the development effort, the only electrical change required was the introduction of a small line-powered amplifier module to interface the T1000 to the payphone handpiece, introduced as a separate component to avoid changing either the instrument or the handpiece.

This design approach meant that faults in the electrical/electronic components of the unit could be simply repaired by opening the case and replacing one of the three parts.

The coin mechanism of existing payphones had been problematic. As a substitute for this payment function it was decided to use a prepaid PIN-card system, based on a modification to the existing Telstra *PhoneAway* card (to be marketed as the Telstra *Country Calling* card). This meant that no coin mechanism was required in the CAT telephone, since the credit balance for each unique phone card would be stored by the back-office database system, and debited according to usage.

Apart from the charging and call set-up sequence, the new phone behaved in the same way as a coin or smartcard payphone, and as a result of its mechanical and electrical simplicity the unit cost was about 85% less.

A further feature of the Community Phone service, which is in fact common to payphones but not promoted, is that it can receive incoming calls. If the service number is publicised appropriately at installation time, residents can advertise it to their families and friends.

Telstra/CAT field trial

A small number of early prototype units were developed by CAT in 2004 with the assistance of contractors with expertise in stainless steel fabrication and general engineering. Following initial workshop and regulatory compliance testing, plans were made for a limited production of 20 units to be supplied to Telstra for a field trial in mostly remote community locations in the Northern Territory and northern South Australia. These trials, together with associated training for residents of the participating communities, began between February and July 2005.



Figure 2: The CAT phone

This field trial proved the equipment concept, and also the operational idea, that a card-operated phone was of benefit to communities and offered an alternative to the more complex and expensive public payphone unit.

Fabrication and assembly of the stainless steel case components for the prototype phone design was relatively labour intensive, and required changes to make the phone suitable for production beyond the trial on a larger scale. CAT and Telstra therefore began negotiations, concurrently with the trial preparations, for an intellectual property agreement (reached between the parties in late 2005) in which CAT granted Telstra the right to use, improve and commercialise the design.

Government-managed extended trial

During the same period, government interest in improving payphone services had been heightened by the shortcomings identified in earlier public inquiries.

In parallel with the rollout of the initial Telstra/CAT trial in 2005, the Department of Communications, Information Technology and the Arts (DCITA, now DBCDE) formed a project team and began negotiations with Telstra and others on a number of levels:

- DCITA contracted Telstra to provide and install approximately 220 robust phones (now designated ‘Community Phones’) in an extended WA/NT trial.
- Pitjantjatjara Yankunytjatjara Media (PY Media), were contracted to provide associated services, which included liaison with the communities, training, preparing and providing spares and toolkits, and engaging locally based organisations to supervise and undertake first level maintenance work.
- PY Media in turn engaged Pilbara and Kimberley Aboriginal Media (PAKAM) and CAT to undertake much of this work. The major locally based organisations (PY Media, CAT and PAKAM) were designated ‘Regional Agents’ to provide a focal point of contact for both the department and the communities. PY Media also engaged a number of local coordinators in the Northern Territory, including Julalikari Council (in Tennant Creek), PAW Media (in the Warlpiri lands), Tangentyere Council (in Alice Springs), Tiwi Islands Local Government and Urapuntja Council (in the Utopia area) to assist in maintenance activities in their respective local areas.

Locations for the installation of the phones were selected, based on applications by interested communities. At this trial stage, it was decided that the location of phones would be limited to those communities that already had Telstra network connectivity and infrastructure in place. While this constraint reduced the cost and time required to put the new services in place, it precluded most small communities that had no existing public phone facilities from participating in the trial.

One of the project aims was to engage two members of each community to undertake the first-level maintenance of the phones. These people were trained by the Regional Agents and provided with a kit comprising basic tools and spare parts. This arrangement was complemented with a regular monitoring service in which the Regional Agents made test calls to confirm the correct operation of the phones.

In practice, the community maintenance arrangement was difficult to sustain and most maintenance was subsequently undertaken by the Regional Agents themselves. The reasons for this are discussed in detail in Section 5.

As indicated above, it was determined early in the development process that successful introduction of the CAT phone on a larger scale would require access to different fabrication techniques. Through its Trillium Technology subsidiary, Telstra retooled the mechanical design while leaving the electrical design unchanged, thus maintaining the functional integrity of the phone. This variant of the phone was designated the Trillium phone, and was the basis for most of the units produced for the government-funded extended trial.

The extended trial resulted in a further 216 phones being commissioned in two stages, around 90 being installed in late 2005 and the balance by August 2006.

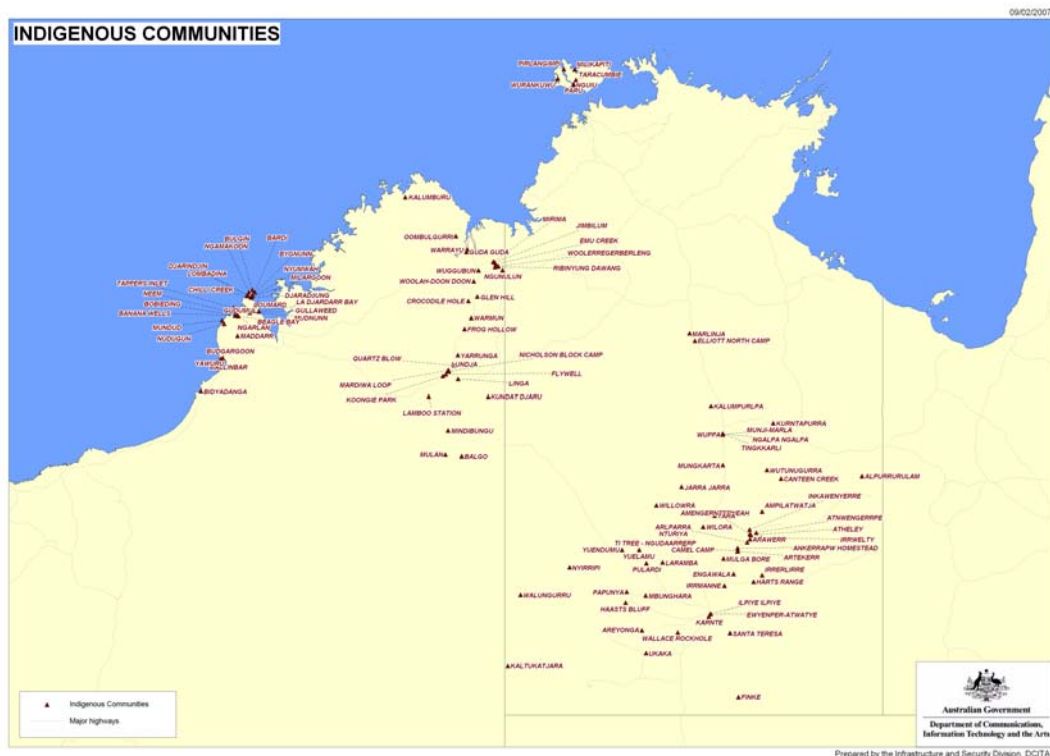


Figure 3: Community Phone locations for the extended field trial

During the trial period, a number of issues arose, and some corrective modifications were made to the Trillium design. These included:

- The switch hook (answer/hang-up) mechanism was found to be imprecise and somewhat unreliable. A temporary minor modification to the mechanical design was introduced on all the Trillium phones through a field upgrade program carried out by Telstra and the Regional Agents.

This was later superseded by a more substantial modification, again introduced to all phones by field upgrade.

- The programmable memory button used to store the card access code in the internal T1000 phone instrument was found to lose its memory over time in many instances. Some instances were attributable to long power outages in the communities concerned and others to a fault in the instrument. The cause of this instrument fault has not yet been resolved.

The DCITA conducted two evaluations of the extended trial, in March 2006 and December 2006 respectively. In general terms the trial was judged to be ‘well received’ and ‘demonstrably successful’ (Horsley 2007). Specific aspects of the outcomes of these evaluations are discussed later in this paper.

One matter that was not adequately dealt with was establishing a formal conclusion to the trial. Thus the issue of what to do with the 20 early field trial installations after the conclusion of the trial remains unresolved at the time of writing, as these original units are still in service while more recent installations have been equipped with an improved model. These field trial units in fact reside in a no-man’s land where they are inadequately serviced (by Telstra) and are no longer performing well, yet there is no funding for their replacement.

In the meantime, by late 2008 a further 20 phones had been installed in new locations as an adjunct to the extended trial project.



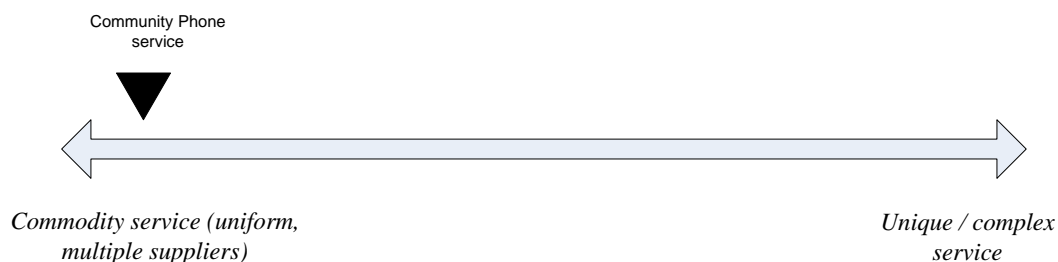
Figure 4: Cabinet mounted Trillium phone on the Dampier Peninsula

The Community Phone can accurately be called an alternative or complementary public phone. With the design improvements made as a result of the two trials, experience has shown that it is as reliable as a coin payphone. Because of its relative simplicity it may in fact prove to be more reliable in the long term (Horsley 2007). With its relatively low capital cost, it can fill a niche both as a USO payphone and as a payphone for smaller communities such as outstations, which are ineligible for a USO payphone.

4. Characteristics of the Community Phone service model

This section of the paper aims to identify some distinguishing features of the Community Phone service, in terms of a number of generalised service characteristics, to more readily allow a comparison with other desert services. The ‘service’ being considered is the total service, not simply the Community Phone itself. There is some overlap between these features, as for example between community engagement and project resourcing.

1. Nature of the service



The service being offered to customers is a phone-call transaction. Seen from that viewpoint, as distinct from the technical complexities of service delivery and market remoteness, Community Phone and other public telephone services are commodity services, given the maturity and uniformity of the product (the telephone call) and the characteristic that the same product can be sourced from multiple providers. In environments where a similar commodity is being offered by other means, such as mobile phone networks, the two services are competing with each other.



Telecommunications services can also be ranged horizontally along a continuum of complexity. The Community Phone service would be regarded as a basic service, given its relative simplicity of use and function compared with other more recently developed complex services such as web browsing, which embrace a wide variety of media, speed, content, security and filtering, and response time features.

Monitoring of the performance of the service was conceived by DCITA as an extra maintenance layer to be carried out by the Regional Agents or other locally based organisations from outside the community. To an extent, this activity involved community members in responding to incoming test calls, but their role was entirely passive and largely random as it relied on whoever was near the phone to answer the call and answer questions on the phone's condition.

In summary, for the majority of community members the overall degree of involvement at project level has only been, and only needed to be, minor. In terms of the possible effect engagement in the process may have had on usage and performance of the service, the only realistic comparison that can be made is with public payphones in communities that have both types of phone. Independent surveys of residents in two such communities (Pmara Jutunta and Santa Teresa in the NT) in mid 2007 indicated that more respondents had used a payphone (84%) than had used a Community Phone (56%), but this could be attributable to the fact that Community Phones had only been in place for about a year, while payphones had been in place much longer (Crouch 2007). Other than that, there is no general evidence to suggest that Community Phones are used more or less than payphones in locations where both are similarly accessible, and reliability performance for both phone types has been similar to date (refer Section 5 below).

4. Funding model



Telecommunications network infrastructure in remote areas has historically been heavily subsidised. Public support for these subsidies continues to be strong, as evidenced by the findings of the 2008 Regional Telecommunications Review, which recommended a substantial expansion to the USO framework to embrace mobile and broadband services on equity grounds (Glasson 2008).

The extent to which services are market-funded (i.e. paid for by the user) is the proportion of total costs that is recouped through revenue from the sale of those services.

Costs

The Community Phone service is substantially funded through two Commonwealth targeted funding programs, these being TAPRIC (including a \$3.5 million phones element over the period 2002–05) and BIA (which includes an \$11.9 million phones element 2007–10 to extend the number of phones introduced under TAPRIC)¹. If TAPRIC expenditure on Community Phones is averaged over an operational life of say 10 years, the amortised annual cost is \$350 000. This is an underestimate of the total costs of the service because additional cost factors need to be taken into account. These figures are not publicly available, but include:

- direct contributions by Telstra to the cost of operating the service, including the provision of network infrastructure
- additional operational costs incurred by DBCDE post-TAPRIC.

¹ The BIA phones element was renamed and absorbed into the *Indigenous Communications Program (ICP)* on 5 March 2009.

Revenue

Community Phones can only be operated by prepaid cards, which are bought in advance by users of the phone. Thus people pay for the use of the service by buying the cards, and revenue for the service is derived entirely from those phone card sales.

An indicative upper limit on card sales revenue is given by the remote area card sales for the period December 2006 to February 2007. Annualised, this figure was \$168 000, but exaggerates the Community Phone component because some of these cards would also have been used with payphones and residential phones in the communities, and some of the cards would have been used by people in locations outside the communities.

Extent of subsidy

The above figures (annual revenue of less than \$168 000 and annual costs of greater than \$350 000) indicate that while people calling from Community Phones pay a fee for the use of the service, the overall funding for the service is closer to the fully subsidised end of the funding continuum. Subject to the outcome of the second implementation round, the level of subsidy may increase for future installations. This is the combined result of the continuing price cap on calls, and potentially greater capital costs given that investments in new network infrastructure may also be required in this coming round.

The breakdown of total service costs to date into capital and ongoing costs is not publicly available. However, some indicative cost components applying to the phone itself are given below.

Costs for community phone assembly:

Estimated purchase cost per phone	\$1000
Estimated installation cost per phone.....	\$5000
<u>Estimated maintenance cost per phone* at \$1300 per year</u>	<u>\$5200</u>
Four-year cost per phone.....	\$11 200

* This figure does not include the cost of carrying out field upgrades to introduce design changes.

User-pays approach

The issue of how much users of subsidised community services should be charged has long been a subject of debate: people's capacity to pay; considerations of equity and rights to services; the sense of entitlement engendered by any level of payment for a service; the commitment that comes from making a contribution; and finally tradition, can all weigh as factors in this debate.

With fixed public payphone services, the long-standing tradition (and government policy) in Australia has been that charging for outgoing local calls should be regulated at a capped subsidised tariff irrespective of the caller's location, the duration of the call or the cost of providing the service. To a large extent, the same has applied for fixed-line residential services. The definition of 'local' has its own meaning in remote Australia, where an 'extended zone' for untimed local calls can be as large as 250 000 km².

This tradition has also been followed for the Community Phone service. Equity considerations in the initial design of the Country Calling card service dictated that call pricing for Community Phones should be capped to maintain parity with urban and other USO payphone users at 40c for an untimed local or extended zone call.

This pricing strategy has neither encouraged nor discouraged use of the Community Phone, given that it is simply a continuation of normal payphone pricing strategy. Adopting a significantly differentiated strategy, such as a higher subsidy for Community Phone use, would have distorted and destabilised the provision of phone services generally, not necessarily with positive results for all users.

5. Subsidy mechanism



Remote telecommunications services in general are subsidised by a mix of USO and targeted-funding mechanisms. The USO is applied to public payphones and the Standard Telephone Service, these being the basic telephone services defined by legislation and regulation that must be ‘reasonably accessible to all people in Australia on an equitable basis, wherever they reside or carry on business’ (Australian Government 1997). Other services, such as extensions to terrestrial mobile networks in areas where improved coverage is deemed necessary but not commercially viable are subsidised by government-funded targeted programs.

Community Phones have been funded by targeted funding. While a recommendation was made to the government by the consultant evaluating the Community Phones extended trial (Horsley 2007), urging it as a very high priority to seek to move these Community Phones into the ambit of the USO payphone funding scheme, this has not occurred. This may be because funding of the USO regime as a whole is highly contentious with Telstra’s carrier competitors, who are obliged to contribute to the funding of it with Telstra in proportion to their share of revenue in the broader market. Change in this environment is politically charged.

6. Project management



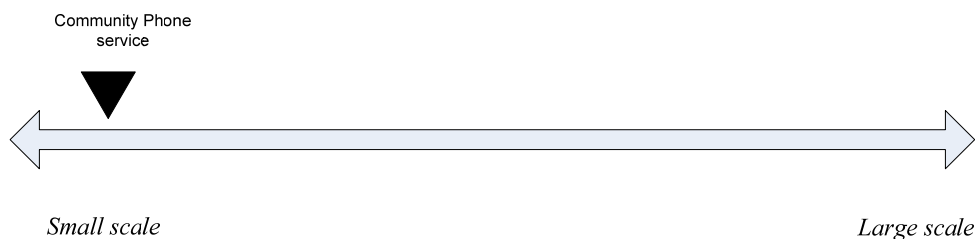
The government has opted to take a managed service-delivery approach to the Community Phone service, as opposed to providing support in other ways such as through fiscal incentives.

Up to now, DBCDE itself has project managed the implementation and operational program, subcontracting the provision of services to the service and maintenance providers (Telstra and Regional Agents) directly. For the next implementation round (scheduled to start in mid 2009) under the BIA/ICP program, however, it is proposing to step back from direct project management by appointing a single provider whose task will be to deliver the full telephone service. It will consolidate the contracts for provision, operation and maintenance into a single integrated contract. This move is possibly motivated by a desire to simplify contract management for the government rather than to improve service delivery. This can be justified if it reduces overall costs, but by redefining its role from that of project manager to program funder, the government will reduce the involvement of its own staff in the delivery process. By so doing, it will diminish their appreciation of and attention to the non-commercial aspects of remote community service provision.

Inevitably, an arm's length funding contract between a government agency and a service delivery contractor devolves much of the daily decision-making to the contractor. Government purchasing managers seek to select contractors who will deliver to deadlines and to specification. Specifications are designed to enable unambiguous performance monitoring and decision-making, and any requirements not predicted and specified in the contract are largely left to the contractor's discretion. Where the contractor has to make a choice between meeting contracted targets and responding to important but unanticipated community events and requirements, it is usually the latter that will lose priority, and it is possible that the government purchasing manager will not even become aware of the circumstances.

This in effect is what has already happened with the original group of 20 Community Phones. Unfortunately, being the original prototypes, these phones are no longer reliable, due mainly to a tendency of the switch hook (answer/hang-up) mechanism in that version to become permanently misaligned with frequent use, resulting in the phones not ringing, answering and hanging up correctly. Community members are aware of this and regularly report faults with them. In a narrow contractual sense, they are outside the scope of the Community Phone Project, and so of limited interest to the Government as contract manager. On its part, Telstra has chosen not to replace them to date as the cost of replacement is high, some of them are not included in the reportable USO payphone performance statistics, and the poor performance of the remainder has little impact on the overall performance statistics for payphones by which Telstra itself is judged. Yet neither of these perspectives is a customer perspective: for the people who use these phones (and rely on them) – such as the town camp residents of Alice Springs and Tennant Creek – there is no obvious reason why these phones should be given any less maintenance attention than the other Community Phones in the town, which have already been enhanced twice and are visited and checked on a regular basis.

7. Project scale



The Community Phones service is a relatively small-scale operation, though geographically widespread. Some quantitative indication of its size is given by:

- Comparing the number of units in service with a similar service. There are 258 Community Phones in service (including both the original and extended trial services). This compares with a total of 1591 payphones in remote Australian locations in 2007–08 (Australian Communications and Media Authority 2008).
- Operational staffing levels. Including DBCDE, Telstra and Regional Agent contributions, six people are engaged in total (all on a part time basis in conjunction with their other duties) in supporting Community Phones operationally. This figure excludes the network infrastructure component, and increases when the implementation of new services is taken into account.

5. Supply and demand: how good is the balance?

Effective service requires a good match between supply and demand. The extent to which that match is achieved in a number of areas determines the success of the service.

Appropriate function: demand for a user-friendly public phone that is readily accessible to all community members

As discussed above, the functional or facility requirement for a Community Phone is similar to that of a payphone. The main difference for a caller is in the payment mechanism. While most residents have adapted to the prepaid-card approach, some people continue to prefer coin-operated phones. Older people and very young children in particular find the long dialling sequence (24 digits including the access code, PIN and full national number) difficult to manage. For this reason, it is appropriate to view the Community Phone as complementing coin payphones, rather than superseding them. It follows that communities ought to have the opportunity to make an informed choice about the type of public phone they want for each particular location. Because of the rigidity of the USO regime as it applies to payphones, this degree of flexibility has not been available to date.

Some service variations have been requested at the local level by individual communities. These include cabinet lighting, amplified ringing devices to make incoming calls more readily audible at a distance from the phone, and relocation of the phone where circumstances have changed since the initial installation.

Provision of lighting where requested is dependent on a reliable power source at the cabinet or building wall, and usually requires mains power to be extended some metres from an existing supply point. In many cases this has been problematic, as the project funding has not included budget provision for this work.

Amplified ringers have also been problematic, in that delivery of this function was not planned for in the early stages of the project despite a significant number of requests for it, and appropriately robust line-powered devices are not readily available 'off the shelf'.

The lighting and ringer cases both represent a level of refinement to the basic service that would enhance its effectiveness, and indicates that the implementation planning process has been a little too simplistic.

Planning a location for the phone has been a compromise between meeting the needs of residents for both privacy and safety while making and receiving calls, providing sufficient visibility of the site to discourage vandalism or misuse, and the technical requirement of proximity to existing network connections. It also means ensuring that the choice of location does not encourage some residents to monopolise the phone, or conversely not use it because of avoidance or other relationship issues. In a few instances, experience or changed community circumstances has resulted in the need to relocate the service. In general, these relocations have been managed effectively through negotiation between the communities, CAT as the Regional Agent, and the DBCDE project manager in Canberra. Sign-off by authorised representatives of the community avoids misinterpretation of the requirements. In most cases the work has then been carried out by Telstra since it typically requires recabling work on the network side of the phone.

In addition to the equipment itself, accessible sources of prepaid phone cards are required to make the service functional. Telstra established these sources and appropriate distribution arrangements, and a part of the Regional Agent's role was to identify local outlets for each community and to facilitate the resolution of any gaps. A complexity was introduced in the card service when it was determined by government that a new card variant would be required to maintain price parity with coin payphone tariffs, as the existing commercially motivated PhoneAway card service tariffs were about 20% higher (49c vs 40c) for local calls. While the equity logic of this approach is clear, in practice the creation of a dual card system has complicated the logistics of distribution and training considerably. Many

residents who were already familiar with using PhoneAway cards on payphones or other phone types before the arrival of Community Phones have continued to use PhoneAway cards either because of greater familiarity, greater availability or the convenience of having to manage only one card type.

The convenience afforded by mobility (i.e. being able to use a phone while mobile) is also a desirable function. In those communities where mobile phone coverage is available, the demand for Community Phone and payphone services has diminished, as it has elsewhere in Australia. To a lesser extent, the presence of a significant number of home phones in some communities has also lessened Community Phone demand.

Reliability: a service that is always available

Service availability for 100% of the time is typically the assumed demand level from customers of a phone service, and suppliers strive to get as close as possible to this level within their resource constraints. For Community Phones, minimising downtime is primarily dependent on the prompt reporting of the fault and minimising the response time, including the typically long travel times involved.

To complement reporting of faults by community members, DBCDE has stipulated a monitoring regime whereby Regional Agents are required to make at least one test call to each Community Phone each month and to respond (usually by visiting the site) if the test indicates a problem. The results are recorded and regularly reported to DBCDE. In practice, this is a somewhat blunt instrument for identifying faults (the call may not be answered but that is no guarantee there is a fault; if it is answered that is no guarantee that the phone can successfully make outgoing calls). The prime function of this regime is to indicate to DBCDE that the monitoring agent is being proactive.

DBCDE have stipulated two levels of maintenance response:

- a program of scheduled visits to each phone (this has approximated to five monthly over the period of the extended trial) to carry out repairs as necessary
- a ‘reasonable endeavours’ response and repair time of 10 working days to call-out requests for most locations, and five working days for communities where the Community Phone is the only public phone available. The active reporting of faults by community members and the monitoring process accounted for few of these faults. Actual response times are not reported and therefore not available.

The fault incidence on Community Phones is illustrated in the pie graph Figure 5, prepared by CAT for the July–September 2008 reporting period. The great majority of faults were detected during regular maintenance visits by CAT, and had occurred at some time since the previous visit (in this case the previous quarter) when any previous faults had been repaired. The 14% figure can be approximated to an average of 7% (half) of the phones that are unserviceable throughout the period.

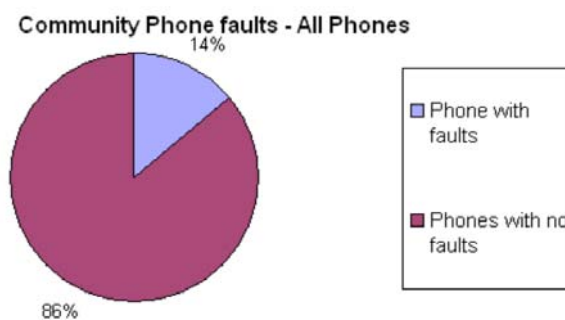


Figure 5: Community Phone fault incidence
(Source: CAT Regional Agent quarterly report to DBCDE September 2008.)

By comparison, the stipulated response times for Telstra to USO payphone fault reports in all remote areas (which includes most Aboriginal and Torres Strait Islander communities) is a ‘reasonable endeavours’ response and repair time of three working days. In 2007–08, Telstra achieved this in remote Aboriginal and Torres Strait Islander communities in 58% of cases, and completed repairs within eight working days in 82% of cases. Payphones were unserviceable for 6% of the time on average (Australian Communications and Media Authority 2008).

The Community Phone unserviceability rate of 7% is comparable with the 6% payphone rate.

Once again, it should be noted that the total maintenance effort includes both a phone component and a network component. Telstra is responsible for the network component for the Community Phone, and for both components for payphones. In the Community Phone case, this results in a small amount of duplication of effort, since it is not always clear until the maintenance person visits whether the fault lies in the phone or the network, and a visit by one party may necessarily give rise to a later visit by the other.

Livelihoods: support for sustainable livelihoods

The Community Phone Project provided support for the livelihoods of people in the communities in which the phones were installed. This happened in two ways:

- In a general sense, the availability of a phone service complemented other services that enable the residents of those communities to conduct their lives there.
- In a specifically planned sense, one of the original goals of the project was to enlist the support of one or two community residents – or in some cases Essential Services Officers (ESOs) – to carry out the basic maintenance of the phone or phones in their own community.

The community maintainer approach involved the preparation of training materials, tool and spare-parts kits, delivery of a training seminar in Alice Springs and also *in situ* training. The intent was to engage the communities in the project through these community maintenance people. The maintainers would check the phones from time to time, make test calls and respond to any local reports of phone faults. In practice, these arrangements succeeded only in the short term (about six months in most cases).

Several reasons can be put forward to explain this result. Perhaps most importantly the original concept was that this would be unpaid work as it was for the benefit of the community and might only require something in the order of one to two hours of work per month, or considerably less if there was only one phone in the community and no problems arose. Unfortunately, such an arrangement does not offer real prospects either for fulfilling work or financial gain, and in the cases where the task was added to the existing responsibilities of a community ESO, it was not sufficiently large a task to warrant much attention.

Another practicality was that the frequent absence of the designated resident maintainers for long periods and the high turnover of community staff meant that enlisting new maintainers and training them was often necessary, and the ability for the community to keep track of tools and spare parts became problematic, particularly as these might only be called on very occasionally. The task of following up on missing maintainers or toolboxes tended to fall to the Regional Agent, again because the size and importance of the task was low on the radar of community managers.

Some faults were more complex than could be addressed by the average community ‘handy person’ even with training. While the ability to diagnose these faults grows with experience, the number of phones that each pair of people had to look after was at most half a dozen; this number did not generate an adequate level of activity to build and maintain this ability.

Complicating the whole picture was the fact that communities were never asked to take formal ownership of the Community Phones, and since there were already well-established examples of Telstra-owned and maintained public payphones in most of the communities, there was no obvious logic in treating public Community Phones any differently. While the distinction might be understood by a few residents, the majority would perceive the two phones as being equivalent in this sense, and therefore see the correct functioning of the Community Phone as an external responsibility. Indeed even with Community Phones a proportion of the maintenance work always remained a Telstra responsibility as any fault occurring on the network side of the phone itself required Telstra intervention.

In summary, it can be said that the combination of the intermittent small-scale nature of the work, the lack of any financial incentive and the lack of formality in the ownership arrangements were the main factors contributing to the demise of community maintenance arrangements. As indicated earlier, the combination of these factors resulted in the need for the maintenance work to be taken up directly by the Regional Agents in most cases.

The issue of local community maintenance has been revisited in more recent time. It is likely that a modified arrangement incorporating a formal contract of ownership and training with payment to the maintainers will be introduced for some locations. To offset the administrative complexity of managing a large number of tiny contracts, the new arrangement will be targeted at those communities where the Community Phone is a very long distance from the regional base and is the only form of public phone available, which increases the incentive of the community to take sustained responsibility for it.

Volume: services delivered match services requested

Requests for Community Phone services in the first round were made by the community completing and signing an application. These were assessed (by DBCDE) primarily on whether network connectivity was readily available, both to speed the trial implementation process and to limit the costs. In practice, this restricted the locations in most cases to communities that already had one or more payphones in place – only 31 of 216 phones were placed in locations where this was the only public phone service available. The Commonwealth's intent with the coming second major (BIA/ICP) round of Community Phones funding is to reverse this pattern – only communities of less than 50 residents will be targeted.

Delivery of the actual phone service (as distinct from the installation of hardware) can be measured by the actual call rates. Statistics for incoming calls are not recorded, but outgoing calls for the period December 2007 to February 2008 inclusive were recorded at 9281 calls, an average of about one call per 48 hours per phone. While this average figure is modest, the individual phone usage varied widely, from a maximum of 488 (five calls per day) to a minimum of zero.

Timing and responsiveness:

- ***prompt provision of new services***
- ***adjusting supply and demand to meet changing circumstances***

The initial provisioning time for services was relatively long, ranging up to about a year. This was in part because of the need to synchronise the provision of local infrastructure (the phone itself, the cabinet where applicable and local cabling) with its integration into the network.

A drawback with a cyclically funded project of this type is that synchronising delivery with requests is difficult. While the initial group of 216 phones were installed within a year of the applications being made in March–April 2005, a significant number (95) of subsequent expressions of interest in getting a phone were made in the period 2006 up to early 2007, and to date most have not been responded to.

Changing technology may have a favourable impact on this situation. The advent of satellite-based network options typically results in a far more rapid rollout of services to individual customers since there is no or minimal fixed infrastructure required in the community, but at the expense of higher operational pricing which the satellite service provider needs to charge to recoup the very high initial cost of putting the satellite and earth-station infrastructure in place. The Commonwealth may well opt for this model to deliver part or all of the next round of Community Phones.

Distribution of resources

Economy of scale or aggregation of volume in the supply of telephone services is normally achieved centrally at the network level, by rationalising and sharing the cost of provision of high-capacity trunk routes, call-centre services, large regional exchanges and the like. Staff and material resources to provide and maintain these core network functions are readily accessed from the capital cities and large regional centres.

At the remote margins however these economies are offset by the high cost of providing and maintaining what is loosely called 'last mile' or 'local loop' connectivity; that is, the connection of each individual phone to the nearest point in the shared network. Since each individual phone ultimately needs a pair of wires or an equivalent radio circuit to make connection, the length and geographic remoteness of this connection and the small number of services required in each area dominate the cost of service since the resources (the installer, the maintainer, the copper cable, the phone itself) must invariably be brought long distances to where they are needed.

In this context, and in contrast to other commodities such as foodstuffs, the unit cost of providing individual calls – whether in the city or remote areas – can be disregarded, since the operation of the switching equipment from end to end of the network is entirely automatic and the energy used is negligible.

While this pattern of resource distribution (high-cost and low economy of scale at the remote geographic margins) is an inevitable consequence of the technologies used to deliver the Community Phone service, alternative technologies such as delivery by satellite would change this pattern to one where the central costs are higher (with more limited capacity and economy of scale than terrestrial networks), and the remote area costs are lower (with little user-end infrastructure). The choice is largely an economic one for the network service provider and their funder.

Pricing – service provided at an affordable price

Pricing for Community Phone services is dictated for practical purposes by the regulated price controls that apply to public coin-operated payphones. There is no charge to the community for the provision of the phone itself, and the tariff for calls – whether through the use of Country Calling or PhoneAway phone cards or coins – is similar. Extended zone calling, which permits calls at the untimed local call rate between points in defined large geographic zones in remote areas of Australia, increases the affordability of use of the Community Phone. With this exception, the call tariffs are consistent with those applied to payphones Australia wide.

6. Project governance arrangements

As noted earlier, the more recent stages of the Community Phone Project have been funded and managed by DBCDE. The management model used by DBCDE is represented in Figure 6.

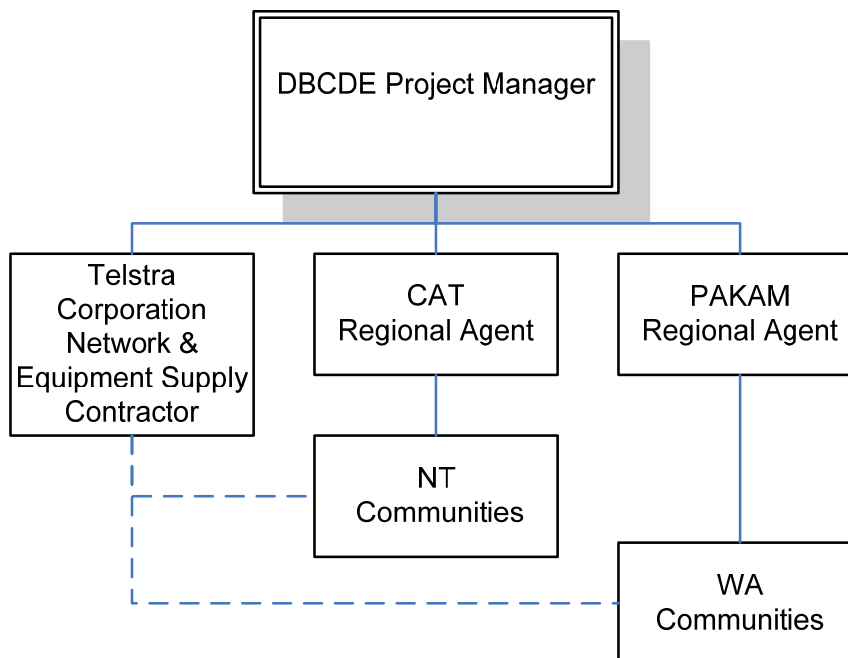


Figure 6: Community Phone project organisation

While both the implementation and operational phases of the project required a considerable amount of coordination between the parties, DBCDE chose to maintain a relatively strict separation of the lines of communication, with strong day-to-day involvement of their own staff (who were based almost entirely in Canberra for the duration of the project) so that each of its contractors had a limited view of what the others were doing.

Telstra, as the network and equipment provider, was responsible for putting the phones, phone services and phonecard outlets in place, while the Regional Agents were responsible for identifying and training the community maintainers, verifying the correct commissioning of the phones, monitoring their ongoing performance, and coordinating any higher-level maintenance action that was required, including the supply of spare parts and tools.

Understandably, communications with the communities themselves were relatively few, except on the occasions where training took place or maintenance action was required.

Prioritising and provisioning of new services

As indicated earlier, eligibility for a Community Phone has so far been largely determined by the practical consideration of network infrastructure availability in the Telstra² network, although there have been a few exceptions in small communities where phones have been provided with satellite terminal equipment and the associated solar power sources. The process for an individual community to appeal a non-eligibility decision or challenge implementation delays has so far not existed, nor been appropriate to the trial situation. However, it would be a reasonable expectation that such a process is

² Telstra is the only carrier that operates fixed line services in the remote areas.

put in place at the start of the next round, given the long implementation times and the fact that 300 phones will not cover all community locations.

The Regional Agent model

Since DBCDE, and its predecessor DCITA, had no telecommunications staff presence outside of Canberra, some means of creating a local presence at the project level was clearly needed. State and territory governments historically have had no operational role in this area except where needed to service these governments' own internal needs, so using them as intermediaries was not an option that could be activated quickly. Local non-government organisations working closely with Aboriginal people were therefore contracted as Regional Agents to provide this point of local knowledge, liaison and action close to the communities.

In practical terms, the Regional Agents have carried out the following tasks:

- liaising with communities on locations for new phones
- training of local coordinators and community members to carry out basic phone maintenance
- initial verification and subsequent monitoring of phone performance
- carrying out higher-level phone maintenance, including the management of spare parts stocks and tools
- liaising with DCITA and Telstra.

Alternatives to the Regional Agent model

While the DBCDE's evaluation process judged the Regional Agent model to be a success (Horsley 2007), a broader analysis might question whether DBCDE and the project could have benefited by positioning its own staff closer to its customers for the duration of the project, given its preference for a strong influence in the day-to-day management. The Canberra-centric model also caused the lines of communication to be limited largely to DCITA – Regional Agent and DCITA–Telstra, where a different model might have built a stronger three-way dialogue.

Alternatively, it could be argued that engaging the state/territory governments in the project at a working level would have helped to build a long-term connection with the communities in the area of public telecommunications services, which are in effect complementary to the education, health, policing and local government telecommunications services that these governments already deliver. The downside of this approach would have been the time required to set the appropriate inter-government bureaucratic mechanisms in place.

Regional Agent experience

The Regional Agent and local coordinator structure has changed considerably since the initial appointments in 2006. CAT is at the time of writing the sole Regional Agent (and has been since April 2007), and of the four original local coordinators only Tangentyere Council remains.

Experience with the local coordination organisations was unsuccessful in most cases. The local coordinators were contracted (initially by PY Media) and paid to carry out and report on a monitoring program whereby they would test the phones by calling to them once a fortnight (or where practicable by visiting them) to ascertain whether they were functioning correctly. The majority of these contracts were later terminated or not renewed when it was found that the quality of the monitoring reports was inadequate. Most of these local organisations appeared to be struggling to maintain a consistent level of staffing and service on these minor contracts.

This experience highlights the issue of resource continuity in small local organisations, which also impacted the project at the community maintenance level. Most of the changes have resulted from an inability of the agents or coordinators to deliver an adequate level of service to meet their contractual

commitments (the exception was PY Media, which terminated its involvement for reasons unrelated to the project).

To some extent, the resource continuity issue has also impacted the DBCDE project staffing, where almost all the original project members, including the external consultant, have moved on and the corporate memory has diminished.

Relationships between CAT and Tangentyere Council (as the current Regional Agent and Alice Springs Town Camps coordinator respectively) and their communities remain sound, although in the operational phase of the project dialogue on the subject of Community Phones is only occasionally needed. Maintenance visits seldom occupy more than an hour, and typically involve only a brief consultation with one or two representative community members.

In the broader context of service provision to communities, there is some value in relationship building and economic terms in a dialogue being developed between service providers and communities on a range of service needs. Regional (telecommunications) Agents could play a part in this dialogue, although it presupposes that the service provider entity has the wherewithal to coordinate and draw together its own resources in diverse technology fields. CAT is exploring such an approach with selected Northern Territory communities, but telecommunications has so far been relatively low on the agenda behind more pressing concerns such as water supply/quality and housing issues.

Dual network service providers?

Had it been feasible to contract dual terrestrial and satellite carrier providers for competitive network service provision, there may have been potential benefits in terms of cost and speed of service provision to particular locations, by choosing terrestrial provision for areas where the existing terrestrial infrastructure was adequate, and satellite provision otherwise.

7. Future directions

The former Commonwealth Government announced in 2007 that, following the extended trial, funding would be provided under its Backing Indigenous Ability (BIA) program for a substantial further group of around 300 Community Phones. In this next round, the communities selected would include communities without existing network infrastructure, and only those with less than 50 permanent residents would be eligible. This latter distinction would allow the new Community Phones to focus the funding on the segment that is most under-served; that is, small outstation communities not covered by the USO payphone eligibility criteria. The current Commonwealth Government has endorsed this approach, and rollout under the revised Indigenous Communications Program phones contract is expected to take place over the 2009–11 period.

When completed, this round will bring the total number of installed Community Phones to around 540, which represents about 77% of the total market requirement of 700 for Community Phones estimated by ACMA in 2004 (Australian Communications Authority 2004).³

The selection process announced by the government is technology neutral, so it may give rise to a mix of both terrestrial and satellite and cable-borne or wireless technologies. While this may complicate the provision of maintenance for what is in reality a relatively small population of devices, it is offset by the ability to minimise provisioning costs and lead times. Ultimately, the acceptability and reliability of the service, as well its overall lifecycle cost, should be the determining factors.

³ This figure is broadly corroborated by later ABS data which indicates that 454 Aboriginal and Torres Strait Islander communities do not have access to a public phone (Australian Bureau of Statistics 2008).

8. Summary and conclusions

The Community Phone Project originated as a response to concerns expressed by Aboriginal community members in consultations with CAT staff about the limitations of their phone services. CAT, Telstra and later the Commonwealth Government had major roles in the development of the service. Development began in 2002–03, through early trials in 2005 to the first extensive implementation round of 216 phones in 2005–06. With minor exceptions, all these phones continue in service. In 2008 a further 20 phones were installed in new locations.

The Community Phone service is characterised as being a service that:

- is a basic commodity service
- fulfils public safety and social and business functions
- requires relatively minor community engagement, mainly during the implementation planning stage
- is largely subsidised through targeted funding from the Commonwealth Government
- includes a user contribution to service costs through payment of a charge-per-call by prepaid card
- has been managed as a project using a managed service delivery approach, with provision of services subcontracted by the Commonwealth Government directly to Telstra and government-appointed Regional Agents
- is relatively small-scale, though geographically widespread
- most of whose resources are sourced remotely from the community locations where the phones are installed.

Key strengths and weaknesses of the Community Phone service and project are summarised in Table 2.

Strengths	Service accepted and used by community members – a contribution to their livelihoods.
	Simple project model, whose scope and boundaries are well defined.
	Effective and cost-efficient development of the prototype design.
	Smooth transition from the prototype through field trial to implementation of a large-scale trial. Most reliability problems have been resolved by design modifications during the field trials.
	Simple-to-use customer interface.
	Low phone unit cost compared to coin payphone.
	Effective local presence and customer-focused regional maintenance process for the service through the Regional Agent model.
	The concept of maintenance using a basic set of tools and spare parts has worked well. It has worked best for each individual maintenance person once they have had an introductory period of several months carrying out the work with guidance from the previous incumbent (both in terms of the technical aspects and the local area knowledge).
	Service accepted and used by community members – a contribution to their livelihoods.
Weaknesses	Long provisioning times due to planning delays between funding rounds – some community expectations have not been met.
	The long dialling sequence is difficult for older people and very young children.
	The initial model for maintenance of the phones by community members did not work effectively.
	Monitoring the correct operation of phones relies on manual processes of reporting and calling, and site visits.
	Ongoing service is dependent on a reliable network of retail phone-card outlets.
	Offering two phone-card types (<i>Country Calling</i> , <i>PhoneAway</i>) has created some confusion by complicating the card distribution and making explanation of the service more involved.
	Long provisioning times due to planning delays between funding rounds – some community expectations have not been met.

Table 2: Community Phone strengths and weaknesses

In conclusion, the Community Phone project has so far been a success but with two main qualifications, these being:

- the long dialling sequence, which is ultimately a technical consequence of the simple design used for the phone instrument
- the continuing delay to the rollout of the second round of phone installations, which may be alleviated by the use of fixed satellite technology.

For the next implementation round under the BIA/ICP program, the Australian Government plans to consolidate the contracts for provision, operation and maintenance into a single integrated contract, and appoint a single provider to deliver the full service. By redefining its role from that of project manager to program funder, the Australian Government will reduce the involvement of its own staff in the delivery process. In so doing, it will diminish their appreciation of and attention to the non-commercial aspects of remote community service provision.

This in effect is what has already happened with the original group of 20 Community Phones. Unfortunately, being the original prototypes these phones are no longer reliable and community members regularly report faults with them. In a narrow contractual sense they are outside the scope of the Community Phone Project, and so of limited interest to the Australian Government. On its part, Telstra has chosen not to replace them as the poor performance of this small group of phones has little impact on the overall performance statistics for payphones by which Telstra itself is judged. Yet neither of these perspectives is a customer perspective: for the people who rely on these phones there is no obvious reason why these phones should be given any less maintenance attention than other Community Phones.

9. Is this a desert service that works?

In this section, we consider how the experience gained from the Community Phone Project, as an example of a service to desert communities, may help to inform some aspects of the research in the DKCRC Core Project 5: Desert Services that Work.

Core Project 5 addresses five questions about the demand and supply of services to Aboriginal communities in remote desert areas, with a focus on demand responsiveness as a criterion for improving services.

Question 1 ‘What are characteristics of the interplay between demand and supply of services, according to the perceptions of consumers and service providers engaged at the local interface?’

This question seeks to explore how the suppliers and users themselves understand the service interplay, and has been framed with a view to it being addressed by research projects specifically set up under Core Project 5. Since the CPP was set up quite independently of Core Project 5, this aspect of CPP has not been systematically researched.

Question 2 ‘What are the conditions that permit successful practice to develop between consumers and service-providers?’

CPP has provided a service whose scope and boundaries are well defined, with the consequence that performance of the phones and the service as a whole (including installation time, up-time and usage) are relatively easily measured. While there have been some boundary issues within the project between the two maintenance providers (Telstra and the Regional Agents), these are minor and have been resolved through negotiation at the project management level. The user interface to the service (i.e. the phone function) is also straightforward and familiar to most community users, as it largely replicates public payphone services that have been well established for many years. Consequently (user) training has been a relatively minor requirement. The level of planning dialogue required to make the service work successfully at community level is also uncomplicated, being largely restricted to consultations to determine the appropriate location of the telephone equipment to ensure a balance between accessibility, privacy and security for phone users. All these factors, which simplify the development of the project and operation of the service, are contributors to project success.

Another element contributing to successful practice is a local and recognisable presence on the part of the service provider. This face-to-face function has been met by the introduction of the Regional Agent model. Regional Agents have been presented as the face of this project at community level, a role that Telstra has traditionally filled for public telecommunications. While resource continuity has been an issue with a number of the agent/coordinator organisations, their collective contribution and local knowledge has ensured that community liaison, provisioning and operational issues have been effectively managed.

The project scope parameters have been deliberately constrained to date both geographically and in terms of infrastructure availability to promote a faster rollout of the initial round of services so that the funder could gain an appreciation of the initial experience with the service. While this can be said to have been a useful strategy from a supply-side perspective, it can not be judged successful from the point of view of the smaller communities who are potentially most in need of a telephone service and have not qualified for one to date because the requisite infrastructure was not already in place in their vicinity. It is arguable, given the period that has intervened between the initial implementation round in 2005–06 and the present (April 2009, with the second main round not yet begun), that this long delay could have been reduced by configuring the implementation program as a continuous rolling program of applications and installations rather than two large blocks of synchronised activities.

In summary, CPP has met some of the conditions of successful practice in providing a simple project model and an effective local presence for the service through the Regional Agent model. Notwithstanding these positive aspects, implementation delays since the first round have limited its success for those most in need of a phone service.

Question 3 ‘At what scales of governance should different service delivery functions be assigned to optimise both demand- and supply-based criteria?’

The Community Phone Project as a service was conceived and implemented at a national level as a component of the TAPRIC program. Provisioning has thus been governed at this level. There was little choice in this, since the cost of carrier infrastructure and network services dominates the overall cost of provision, and service pricing to users is also largely dictated by Australian Government legislation and regulation and associated funding schemes. The tendency to national-level governance is also reinforced by the nationally focused corporate organisational model used by the primary remote-area service provider and carrier (Telstra), and by the historical absence of telecommunications governance institutions at state or territory level.

One area where a more localised model of governance has been possible is the area of phone maintenance. As noted earlier in the report, community-level maintenance was envisaged and initially implemented as part of the original project concept, but always with the intention of regional governance through the medium of a Regional Agent model. The regional model has persisted, and appears to be robust due to there being:

- a sufficient volume of work across the region to justify continuous resourcing with the same staff (ensuring the maintenance of service monitoring and repair skills and the ability to resolve occasional more complex faults), and work plans that provide economy of scale in travel costs through coordinating regular maintenance visits to clusters of communities from the regional base
- an appropriate level of local knowledge of and regular working relationship with the serviced communities
- firm contractual commitments between the funder and the regional agent.

For these reasons, regional governance appears to offer an optimum model of phone maintenance over both a small-scale local maintenance model (except perhaps for the special case noted earlier in the report where the distance from the regional supplier’s base is exceptionally large), and large-scale national governance where a lack of local knowledge of the geography, community needs and logistics would inhibit a successful maintenance response.

Demand can be subdivided into two elements: the demand for new Community Phone services to be put in place; and demand in terms of the actual phone-call usage. Optimising the demand for new services is best carried out at a level that is cognisant of local factors and needs, while at the same time being accurately informed of the provisioning cost for those particular community locations and the cost relativities between locations. There is a tension between these requirements which can only be resolved successfully through inputs from both the community itself and the service provider. Governance of the selection process is then best managed by a third party balancing these inputs, typically the funder (the government).

There is normally no need to govern the demand for phone use since the capacity of the equipment is essentially unlimited once it is operational. Occasionally there will be a need to redeploy equipment and services if they are underused due to changing community occupancy patterns; decisions on these matters can be managed under similar governance arrangements as for new services.

Question 4 ‘What are the service-type and delivery-style priorities of consumers within a specified budget framework, and what is their capacity to participate and willingness to contribute to services?’

Service delivery-style priorities for public phone services in communities are largely driven by a combination of the need for a reliable lifeline-style emergency service on one hand and a simple low-cost social communication tool on the other. The Community Phone instrument, combined with conventional payphone tariffs (free emergency calls and local call charging for extended zone calls), has met both of these needs in remote communities. Residents have generally accepted the Community Phone as a complementary form of public phone. The only drawbacks have been the large number of digits that must be dialled to make a call, a consequence of the 12-digit PIN that is needed for the prepaid cards that are integral to the service, and sometimes a shortage of card stocks at their local supplier. Neither of these issues is unique to the Community Phone, however, as the same cards are often used with payphones and private phones. Nevertheless, the Community Phone is more susceptible because cards are the only payment mechanism available for it, while the other phone types usually offer alternatives such as coin payment or post-paid accounts.

Community users of the phones thus contribute in the normal way to payment for phone services. It appears from anecdotal conversations the author has had with residents that, like most consumers of public phone services elsewhere in Australia, they believe Telstra is the provider of public phone services and is therefore responsible for maintaining the phone should it fail.

Question 5 ‘What are the critical issues and strategies to improve the service system, including the strengths and weaknesses of different technology and governance options?’

Community phones currently service about 260 locations in 150 communities. There are over 450 Aboriginal and Torres Strait Islander communities Australia-wide that do not have access to a public phone (Australian Bureau of Statistics 2008), most of which are small, remote communities, and the next round of Community Phones is intended to address two-thirds (300) of this shortfall. A critical constraint to providing further Community Phones, as with all telephone services, is the complexity, cost and implementation time lag associated with extending the telephone network to make the connection of phones possible in locations where network link infrastructure does not currently exist. While not all of the 450 communities are affected in this way, their remoteness and small size will put many in this category.

Broadly speaking, the candidate technologies for long-haul network connections are satellite or terrestrial cable or terrestrial point-to-point radio systems. The marginal cost and lead time required to add further connections by satellite is small since all the network infrastructure is already in place, but satellite service providers need to charge sufficient (either in up-front charges or call charges) to recoup their large initial systems investment. For terrestrial connections, almost the reverse is true: adding a new connection in an unserved remote area involves the provision of a dedicated network link at high marginal cost (often over a long distance) to connect with the nearest point on the provider’s existing network.

While satellite systems have limited traffic-carrying capacity compared to modern terrestrial cable systems, individual telephones are not large contributors to the system load. Consequently, satellite connections offer a strategic advantage in terms of a rapid rollout for services like the Community Phone service, with the significant proviso that the ground terminal equipment is simple and reliable, and appropriate costing can be negotiated with the satellite service provider. Within the satellite ‘family’ of solutions, there are two broad categories: portable telephones and fixed telephones. While portable satellite phones are the ultimate in terms of project implementation simplicity and are physically rugged, they are unlikely to be reliable in the broad sense intended. Portable equipment inevitably spends much of its time being carried around by individuals, and is likely over time to become personal property by default and lose its intended status as a public facility that is equally accessible to all members of the community. Fixed satellite services best fit this definition of a ‘community phone’ and may therefore offer a solution to the network-extension and lead-time issue if suitable pricing can be negotiated.

Maintenance arrangements for the telephone equipment itself (whether the existing Trillium design interfaced with a proprietary satellite terminal or the satellite provider's own product) could be modelled on the existing arrangements.

Concluding comments

In conclusion, the Community Phone project has so far been a success, with two main qualifications, these being:

- the long dialling sequence which is ultimately a technical consequence of the simple design used for the phone instrument
- the continuing delay to the rollout of the second round of phone installations, which may be alleviated by the use of fixed satellite technology.

Key positive elements of the service include a simple project model, whose scope and boundaries are well defined, and an effective local presence and regional maintenance process for the service using a Regional Agent model.

Although the Community Phones Project does not reflect the demand-responsive approach emphasised in DKCRC Core Project 5 it nonetheless provides some valuable insights into elements of successful service delivery.

10. References

- Australian Bureau of Statistics. 2008. *Housing and infrastructure in Aboriginal and Torres Strait Islander communities*. Australian Government Publishing Service, Canberra.
- Australian Communications and Media Authority. 2008. *ACMA Communications Report 2007–2008*. Australian Government, Melbourne.
- Australian Communications Authority. 2004. *Report of the Payphone Policy Review*. Australian Government, Melbourne.
- Australian Government. 1975. *Telecommunications Act 1975*, Canberra.
- Australian Government. 1997. *Telecommunications Act 1997*, Canberra.
- Besley M. 2000. *Connecting Australia, Report of the Telecommunications Services Enquiry*. Department of Communications, Information Technology and the Arts, Canberra.
- Crouch A. 2007. *Telephone customer awareness review project report*. Centre for Appropriate Technology, Alice Springs.
- Department of Communications Information Technology and the Arts. 2002. *Telecommunications Action Plan for Remote Indigenous Communities*. Australian Government, Canberra.
- Department of Communications Information Technology and the Arts. 2004. *Report of the Review of the Operation of the Universal Service Obligation and Customer Service Guarantee*. Australian Government, Canberra.
- Estens D. 2002. *Connecting Regional Australia, Report of the Regional Telecommunications Inquiry*. Commonwealth Department of Communications, Information Technology and the Arts, Canberra.
- Glasson W. 2008. *Framework for the Future, Report of the Regional Telecommunications Independent Review Committee* Australian Government, Canberra.
- Horsley A. 2007. *The Community Phones Program, Stage 2 Evaluation, December 2006*. Melbourne.

DKCRC Partners

