



Australian Government
**Australian Communications
and Media Authority**

Australia's regulator for broadcasting, the internet, radiocommunications and telecommunications

www.acma.gov.au

The Australian VoIP Market

The supply and take-up of VoIP in Australia

April 2008

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Executive summary

Voice over Internet Protocol (VoIP) is a service that has the potential to change the fixed-voice market. The low pricing and additional functions offered by VoIP services create strong competition for traditional public switched telephone network (PSTN) fixed-voice services. Ovum forecasts that VoIP will make up 21 per cent of fixed-voice revenues in Australia by the end of 2011.

The Australian VoIP market is growing rapidly. Between April and September 2007, the number of VoIP providers increased by 27 to 269. It is, however, more difficult to get reliable estimates of the number of VoIP subscribers because many VoIP providers do not release their subscriber numbers. One estimate from Market Clarity forecasts a 237 per cent increase in internet-based VoIP subscribers between June 2007 (1.4 million) and June 2011 (4.8 million).

VoIP providers use various business models and pricing structures. Service providers can bundle VoIP with other services—18 per cent of internet service providers (ISPs) bundle their services with VoIP. Some VoIP providers are ISP-independent and offer their services to anyone with a VoIP-capable internet connection. Others use a hybrid approach, where ISPs offer VoIP to their own broadband customers as well as other consumers. VoIP services are cheaper than traditional fixed-voice PSTN pricing—VoIP calls may be free if made between customers on the same VoIP network. While cheaper pricing is attractive for customers, it also places pressure on revenues. Consequently, pure-play VoIP providers may have more difficulty sustaining a business case.

Recent research has found a relatively limited take-up among consumer respondents over 18 years of age (15 per cent)¹ and small to medium enterprises (SMEs) (13 per cent).²³ However, there is a high level of awareness of the services and interest in taking up VoIP in the future. As is common with new technologies, consumer VoIP usage is higher in the younger age groups and households with higher income levels. Respondents interested in taking up VoIP in the future share these characteristics. In addition, VoIP users are more likely to be embracing emerging communications trends, such as using mobiles as a main form of communication. SMEs of a medium size and in the communications industry are more likely to be interested in VoIP.

¹ Woolcott Research, *Telecommunications Usage and Expectations*, April 2007: Total respondents, n=1600. Respondents were over 18 years of age and were the main or joint decision-maker in relation to at least one household telecommunications service.

² Sensis®, *Business Index*, May 2007: Total respondents, n=1800

³ SMEs are defined as businesses with 200 employees or fewer.

1 Introduction

VoIP services represent a new direction for fixed communications and a potential substitute for PSTN fixed-voice services. Compared with PSTN fixed-voice, VoIP is generally cheaper, has a more efficient call process and offers additional functions. However, VoIP calls can be subject to more variations in voice quality compared with PSTN calls and this could inhibit take-up of the service. While consumer and SME research suggests that take-up is currently relatively limited, there is a strong level of interest in adopting VoIP in the future.

The Australian Communications and Media Authority (ACMA) has undertaken an examination of the supply and demand of VoIP services for consumers and SMEs. This report is designed to assist ACMA in its role as industry regulator and is consistent with its regulatory responsibilities to provide information about the telecommunications industry. As VoIP services are a potential substitute for the PSTN fixed-line voice service, ACMA is monitoring their development.

The purpose of this report is to:

- provide an overview of VoIP services;
- identify the size of the VoIP market, both in terms of overall take-up and the suppliers of the services; and
- explore how factors such as age, gender and income in the case of consumers, and industry and business size in the case of SMEs, influence take-up of and interest in VoIP.

2 Methodology

Third-party research has been used to inform this report. Two surveys have been used to analyse consumer and SME demand:

1. Woolcott Research, *Telecommunications Usage and Expectations*, April 2007—ACMA commissioned Woolcott Research to undertake qualitative and quantitative research into consumer attitudes towards take-up and use of telecommunications services in Australia; and
2. Sensis®, *Business Index*, May 2007—ACMA included questions covering business attitudes towards take-up and use of telecommunications services in this survey.

Appendix A outlines the methodology for both surveys.

This report also uses third-party research on the Australian VoIP market including:

1. Market Clarity, *Market Clarity News and Views*, 6 February 2007; and
2. Ovum, *Wireline Strategy, Australia Fixed Voice Services Forecast 2006–2011*, August 2007.

3 The VoIP market in Australia

3.1 What is VoIP?

Internet Protocol (IP) technology is increasingly used to provide voice services due to the growth in broadband penetration, the accelerating use of IP in data networks and the greater availability of suitable equipment. The use of IP technology involves the encoding of voice communications into IP packets for transmission and is often referred to as VoIP. It has moved from a niche component in data networks to being the dominant technology for large corporate voice services and new entrants in the voice market. Essentially, VoIP is a catch-all term that covers a range of services, including computer-to-computer communications and VoIP services, that act as an effective substitute to standard PSTN landline services.

VoIP has economic and efficiency benefits for both suppliers and users of the service. Business can benefit from the lower costs and additional functions offered by VoIP. Telecommunications equipment vendors have developed IP replacements for the analog private branch exchanges (PBXs) installed in many companies and can now provide converged solutions. VoIP-enabled PBXs (or soft switches) allow organisations to use their local area networks (LANs) and wide area networks (WANs) for both data and voice. This results in improved handling of messaging and directory facilities as well as significantly reduced costs.

Consumers can also benefit from the cheaper calls and enhanced functionality offered by VoIP services. Calls are cheaper partly because of the increased efficiency of the VoIP call process. A call over a PSTN network takes up the full capacity of the two phone lines involved in the call for the duration of the call. In contrast, a VoIP call conversation is split into data packets that are sent over the network and reassembled at the other end. Consequently, line capacity is used more efficiently and this is translated into savings for the consumer.

As well as cost savings, VoIP services can also provide additional features without the increased costs that arise when these services are provided over a traditional fixed-line service. These features can include voicemail, electronic notification of voicemails, call blocking, conference calls, routing to a selected phone number, instant messaging, video calls, the ability to send text, visual information or files during a conversation, and the ability to use your VoIP phone number regardless of your geographic location. However, some of these services may only be available if both call participants are using a PC-based VoIP service or the same VoIP provider.⁴

⁴ ACMA, 'Introduction to VoIP', 11 October 2007, viewed 18 October 2007, <http://www.acma.gov.au/WEB/STANDARD/pc=PC_310763>

3.1.1 VoIP service types

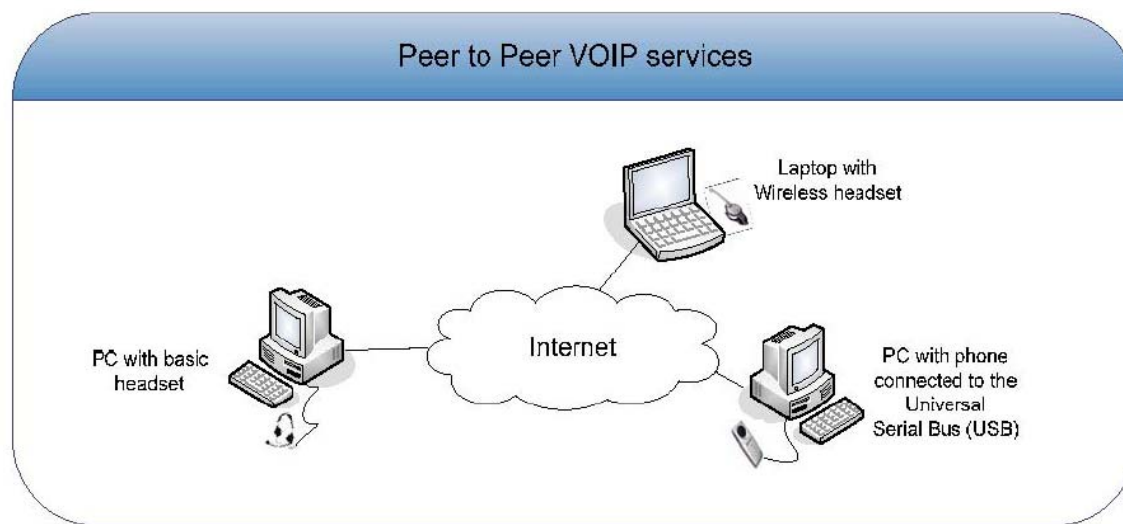
VoIP can be categorised into four service types.

Type 1: on-net services

This service type enables customers of the same VoIP provider to make and receive calls on that VoIP network only and isolated from the PSTN.

Type 1 VoIP services are typically provided by online providers such as Skype that require users to have a separately sourced broadband connection. This service type uses the VoIP process detailed in Figure 1.

Figure 1: Type 1 VoIP services



Source: DCITA, *Examination of Policy and Regulation relating to Voice over Internet Protocol (VoIP) Services*, Canberra, November 2005, p. 15

Types 2, 3 and 4: services interconnecting with the PSTN

The other three VoIP service types interconnect with the PSTN:

- **Type 2 outbound only:** one-way outbound services—these enable users to make outgoing calls, including to the PSTN, but do not enable users to receive calls from the PSTN.
- **Type 3 inbound only:** one-way inbound services—these enable users to receive calls from the PSTN, but do not enable users to make calls to the PSTN.
- **Type 4 inbound and outbound:** two-way services—these enable users to make calls to and receive calls from the PSTN.⁵

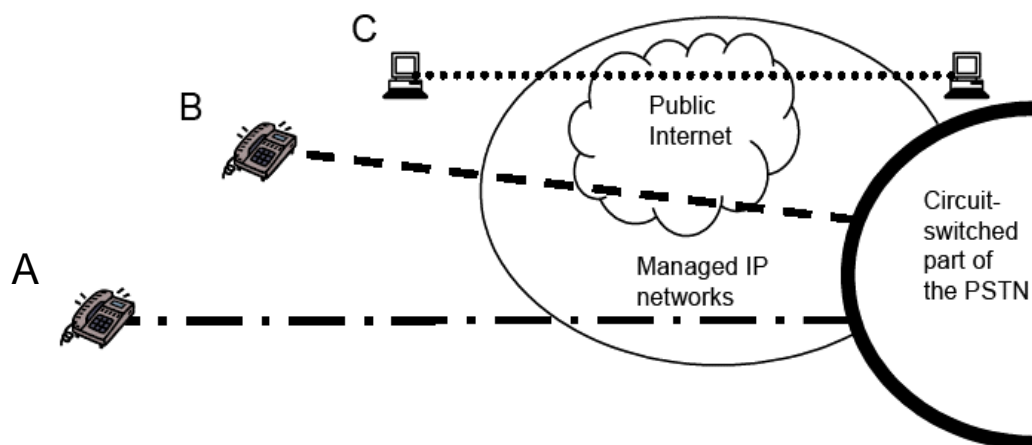
VoIP providers sometimes offer tiers of voice services to their customers. For example, Internode offers NodePhone1 and NodePhone2. The NodePhone1 service only allows customers to make outbound calls while NodePhone2 allows customers to both make and receive calls.

Type 2, 3 and 4 VoIP services can be delivered over a managed network or over the open internet before connecting with the PSTN.

⁵ Service types 1 to 4 are not exclusive in terms of the offering to end-users. For example, an end-user may have a two-way service but when making a call to another user on the same VoIP network, they are essentially using on-net services that do not connect to the PSTN.

Figure 2 shows VoIP service processes that interconnect with the PSTN over both a managed IP network and the open internet. It is a simplified diagram of VoIP service processes, illustrating the party originating the call on the left-hand side of the diagram to a customer on the right-hand side of the diagram. For simplicity, details of how calls are routed through to the customer receiving the call are omitted (generally, the process would flow in the reverse direction).

Figure 2: VoIP service processes



Source: ACMA

VoIP types 2, 3 and 4 can use Process A or B, depending on whether the VoIP provider has structured the service to be delivered over the open internet or a managed IP network. Process C shows type 1 VoIP services for comparison.

Processes A and B show VoIP services that interconnect with the PSTN. An example of a Process A scenario is where the end-user's ISP provides the VoIP service and either arranges connection to the PSTN directly or through a third party. The VoIP service may use managed IP networks throughout for access to the PSTN. For example, the NodePhone service is delivered over Internode's private network.

Process B shows a VoIP service that is routed over the public internet. An example of this arrangement is where the end-user has access to the internet via their own ISP and acquires VoIP services from a separate entity. For example, a user subscribes to the Freshtel Firefly VoIP service while accessing a broadband connection through a separate ISP. The IP packets that form the VoIP calls are routed by the end-user's ISP across the public internet to the VoIP provider, which assembles the packets and connects the call to the PSTN.

The following discussion about the supply and demand of VoIP services makes no further distinction between these different VoIP service types.

3.1.2 VoIP quality

While VoIP services can provide better quality voice transmission than mobile and sometimes even PSTN fixed calls, they may also be subject to more variation in call quality. This variation can be caused by congestion elsewhere on the internet, as well as by the competition for resources on the user's broadband connection. For example, the quality of a VoIP phone call may be negatively affected if the broadband connection is being used to

download a large file at the same time. The audio quality of the equipment used, for example the headset, may also affect the call experience.⁶

3.1.3 VoIP requirements

VoIP customers need to have a broadband connection and, usually, additional equipment before they can connect to a VoIP service.

Table 1: Requirements for using VoIP

Requirement	Commentary
VoIP provider	Customers need to select a VoIP provider—some providers will require customers to subscribe to their service for a specified period, while others may not require any ongoing payments at all.
ISP	Customers need to have broadband access—the bandwidth required for VoIP services can vary. A speed of 256/64 kilobits per second (kbit/s) is adequate for one phone call if the connection is not being used for any other applications. A speed of 512/256 kbit/s is suitable for residential use, while 512/512 kbit/s would suit a small office. ⁷ Dial-up internet connections with maximum speeds of less than 56 kbit/s can be used for VoIP calls, but they will be of significantly poorer quality. ⁸ Download limits are also important. Light VoIP usage uses around 200 MB a month, medium usage around 600 MB and heavy usage around 20 GB. ⁹
VoIP equipment	The equipment required for a VoIP service depends on the type of service—for example, customers may need an analog telephone adaptor to connect the existing telephone to the VoIP service, a microphone and speakers or headset for a PC connection, or a free-standing WiFi VoIP handset. ¹⁰

3.2 VoIP providers

There were 269 voice providers offering VoIP-based services in Australia at 5 September 2007 (see Appendix B). Of these, 161 target the residential market.¹¹

VoIP providers are established ISPs, smaller telecommunications companies and start-up companies specialising in VoIP.

3.2.1 Provider business models

There are several models for offering VoIP:

- **ISP-independent:** These services require customers to source their own broadband access. The VoIP provider only offers the VoIP service. MyNetPhone is an example of this business model.

⁶ ACMA, 'VoIP Quality,' 11 October 2007, viewed 18 October 2007, <http://www.acma.gov.au/WEB/STANDARD/pc=PC_310763>

⁷ Communications Alliance, *So you want to have a VoIP service?*, 2nd edition, June 2007, p. 14, viewed 16 October 2007, <http://www.commsalliance.com.au/Activities/ngn_voip>

⁸ ACMA, 'Introduction to VoIP'

⁹ Communications Alliance, *So you want to have a VoIP service?*, p. 14

¹⁰ ACMA, 'Introduction to VoIP'

¹¹ Market Clarity, 'Aussie VoIP List', 5 September 2007, accessed 12 October 2007, <<http://www.marketclarity.com.au/voip/>>

- **VoIP and broadband bundle:** These providers will only provide VoIP services to their existing broadband customer base. iiNet is an example of this business model.
- **Hybrid:** These providers offer VoIP services to their own broadband customers as well as to customers of other broadband services. Internode is an example of this business model.

3.3 VoIP pricing

VoIP is cheaper than traditional fixed-voice PSTN service pricing. Many VoIP providers offer free on-net calls, that is, calls made between customers on the same VoIP network. Other VoIP pricing structures include:

- a one-off charge per connection;
- connection flagfall plus charges for time connected;
- charges per second or minute connected; and
- a subscription that offers a set amount of minutes or calls per month.¹²

Pricing structures differ between providers and according to the type of call made. For example, local area and national calls may incur a one-off charge per call while international calls are charged on a per-minute basis.

Gotalk has recently introduced a monthly VoIP plan that includes unlimited calls to local, national and mobile phones. As VoIP calls to mobile phones are generally charged at around \$0.20 per minute, this plan represents a significant reduction in VoIP pricing.

Table 2 shows a sample of VoIP pricing plans available in Australia.

Table 2: Sample VoIP and PSTN pricing

Service	Provider	Plan name	Monthly cost	Included value	Local/STD calls	Mobile calls
VoIP	gotalk	goVoIP Aussie Pack	14.95	Free local, national and mobile calls	Free	Free
VoIP	Engin	Engin national	14.95	Free local and national calls	Free	\$0.22 per minute
VoIP	MyNetFone	MegaSaver	9.95	100 free local/national calls	\$0.1 untimed	\$0.22 per minute
PSTN	Telstra	HomeLine Budget	19.95		Local calls are \$0.3 untimed	\$0.37 per minute

Source: gotalk, Engin, MyNetFone and Telstra

The September 2006 internet activity survey by the Australian Bureau of Statistics (ABS) found that 18 per cent of ISPs provide VoIP services as part of a bundled internet package to consumers. Table 3 shows the number of ISPs offering VoIP services as part of a bundle.

¹² ACMA, 'Introduction to VoIP'

Table 3: ISPs providing VoIP as part of bundled service offers, by size of ISP

	Very small (1–100 subscribers)	Small (101– 1,000 subscribers)	Medium (1,001– 10,000 subscribers)	Large (10,001– 100,000 subscribers)	Very large (100,000+ subscribers)	No. of ISPs
Internet bundled with VoIP	13	40	22	7	3	85
Total ISPs	124	119	112	22	10	467
% of ISPs offering VoIP	10	33	19	31	30	18

Source: ABS, 8153.0 *Internet Activity, Australia, Sep 2006*, unpublished data

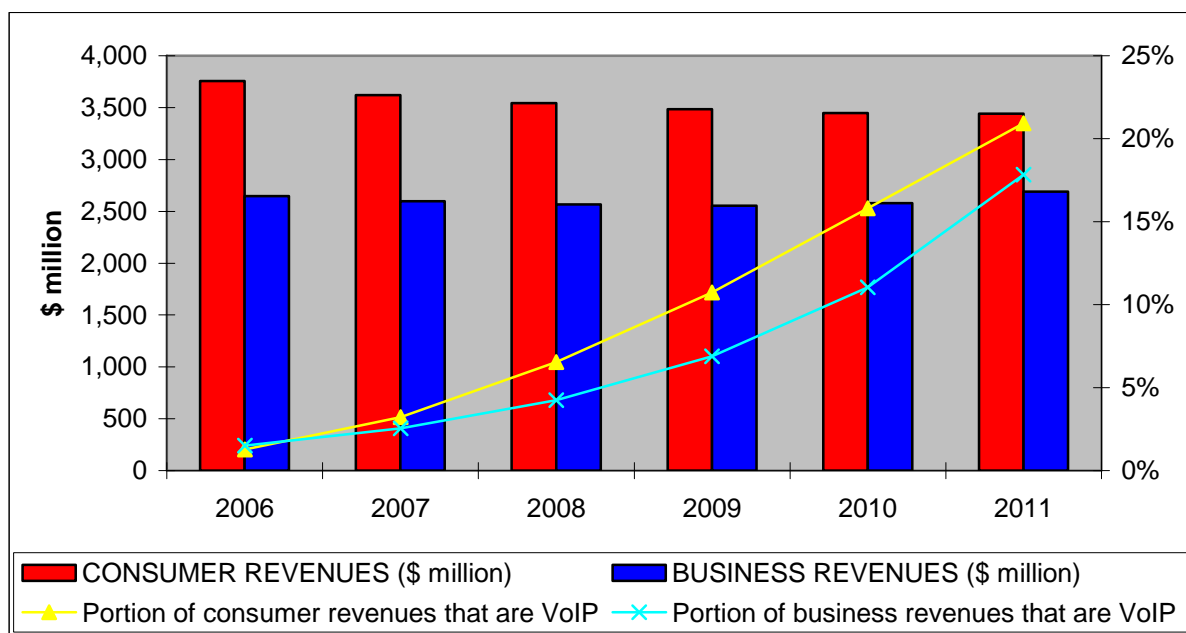
If 85 of the 269 VoIP providers are ISPs offering bundled services, this indicates that there are many pure-play operators in the Australian market.

3.4 Voice revenues

Ovum forecasts that overall fixed-voice revenues will decline, while the percentage generated by VoIP will increase. Voice pricing will decline as a result of competition and increased VoIP penetration. By 2010–11, VoIP is expected to drive pricing trends in developed markets such as Australia.¹³

Figure 3 shows that VoIP as a portion of business and consumer fixed-voice revenues in Australia is expected to increase to 18 per cent and 21 per cent respectively by the end of 2011.

Figure 3: Ovum forecast—Australia fixed-voice revenues (US\$ million)



Source: Ovum, Wireline Strategy, 'Australia Fixed Voice forecasts 2006–2011', August 2007

¹³ Ovum, Wireline Strategy, 'Fixed voice services: market development scenario', August 2007, viewed 16 October 2007, <www.ovum.com>

4 VoIP usage

4.1 VoIP subscribers

The size and value of the VoIP market is difficult to quantify due to the problem of defining users and differences in business models. VoIP providers have different definitions of customers ranging from those who distinguish between paying customers and users of free VoIP services, to those who count all subscribers regardless of type.

The surveys used in this report indicate that a relatively limited number of consumers and SMEs have adopted VoIP. However, the surveys also indicate that there is strong interest in using VoIP in the future and, as usage increases, VoIP will have a significant influence on the Australian voice market.

Market Clarity research forecasts that internet-based VoIP subscriber numbers will increase from 1.4 million in June 2007 to 4.8 million by June 2011. Free internet-based VoIP services, which only allow calls to customers on the one VoIP network, make up around one million of the subscriber base in June 2007 and will continue to make up a large proportion of the subscriber base in 2011.¹⁴

One factor that is likely to positively affect the growth of VoIP subscribers is the introduction of the so-called 'naked DSL' service by ISPs. Naked DSL (or stand-alone DSL) is a broadband service that is unbundled from a phone service. Consumers subscribing to naked DSL are able to receive a broadband access service without having to also pay a fixed-line phone rental. Naked DSL is likely to encourage VoIP adoption because users will no longer be required to have PSTN fixed-line phone access.

4.2 Consumers and VoIP

4.2.1 Awareness of VoIP

Eighty-one per cent of internet households, when prompted with brand names such as Skype, were aware of VoIP services and 72 per cent of households intending to adopt the internet were aware of VoIP. Qualitative research conducted by Woolcott on behalf of ACMA indicates that, while consumers may be aware of VoIP and its reputation for cheap international calls, many misunderstand what the service entails and the hardware required. For example, some focus group participants confused VoIP services with web-cam communication services.¹⁵

¹⁴ Market Clarity, 'Market Clarity News and Views', 6 February 2007, viewed 18 October 2007, <<http://www.marketclarity.com.au/news/07-02-06-newsletter.cfm>>

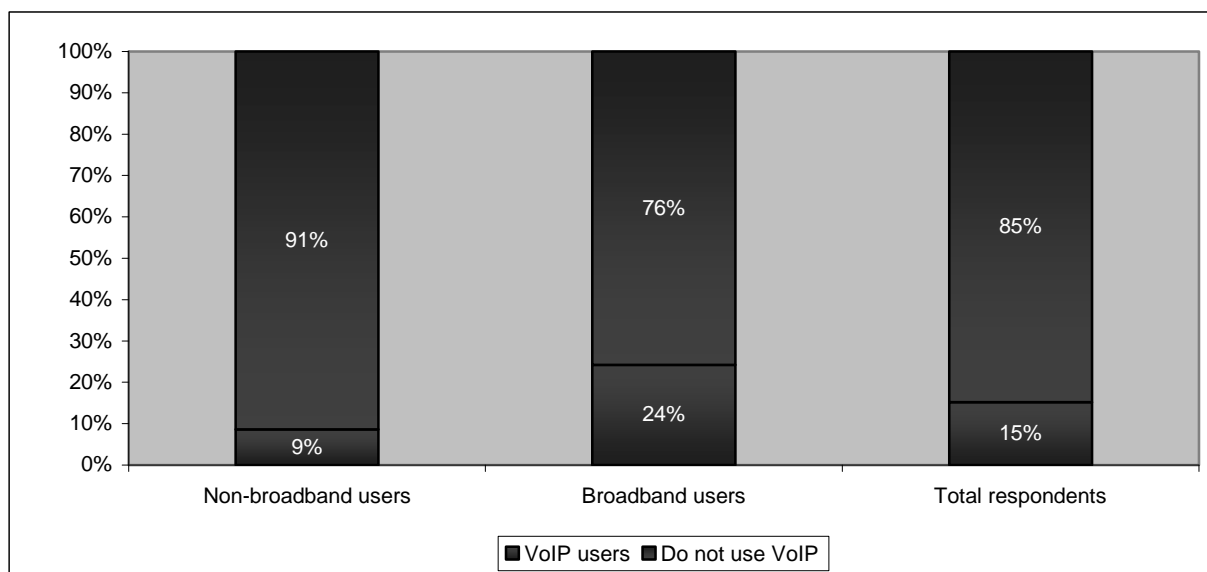
¹⁵ Woolcott Research, *Telecommunications Usage and Expectations*, April 2007: Total respondents, n=1600.

4.2.2 VoIP users profile

Fifteen per cent of respondents were VoIP users. Qualitative research indicated that VoIP users had a high degree of satisfaction with the service.¹⁶ VoIP, in terms of fixed-line voice provision, is not a substitute for mobile calls but rather a complementary service. While mobile phones are valued for their portability and seen as suitable for short conversations and text messages, fixed-line phones are preferred for conducting longer phone conversations or long-distance calls.

Unsurprisingly, given the bandwidth requirements of VoIP, the majority of users had a broadband connection.

Figure 4: VoIP users by type of internet access

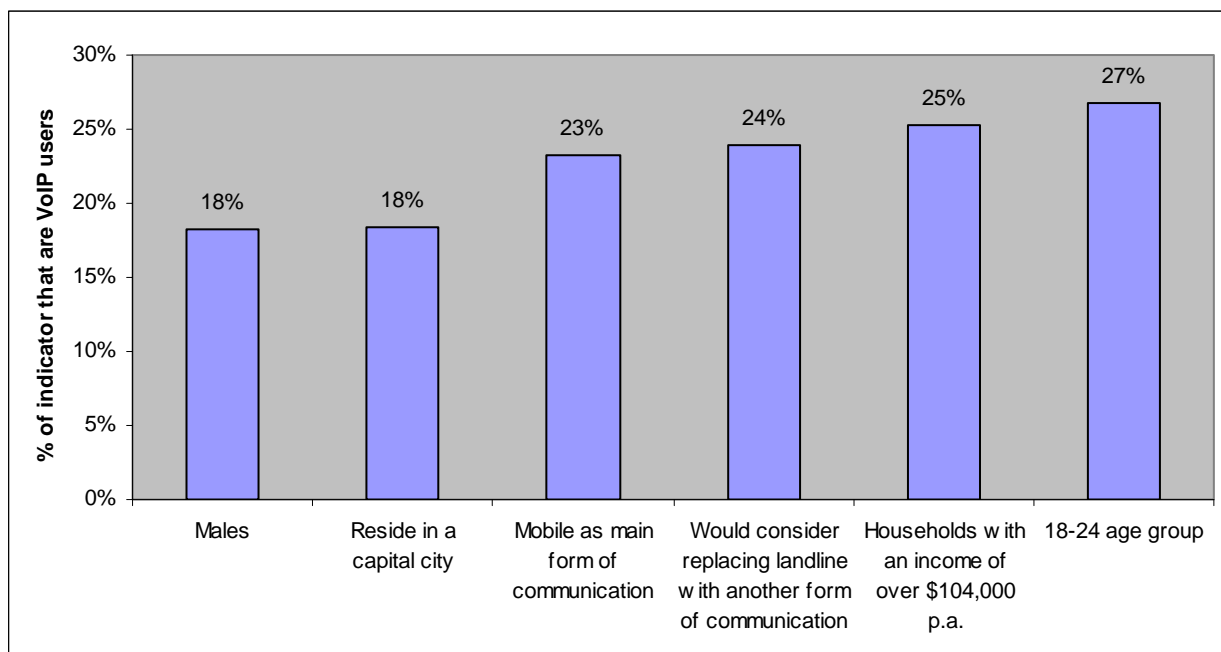


Source: Woolcott Research, *Telecommunications Usage and Expectations*, April 2007: total respondents, n=1600

As is typical with new technologies, VoIP usage is higher among younger age groups and those with higher incomes. Figure 5 shows the indicators that were correlated with a higher level of VoIP usage.

¹⁶ Ibid.

Figure 5: Indicators correlating with a high level of VoIP usage



Source: Woolcott Research, *Telecommunications Usage and Expectations*, April 2007: total respondents, n=1600

There are also a relatively high percentage of VoIP users among those respondents who are embracing communications trends generally, as indicated by their use of mobiles as a main form of communications and their interest in replacing the traditional fixed-line voice service with another form of communications.

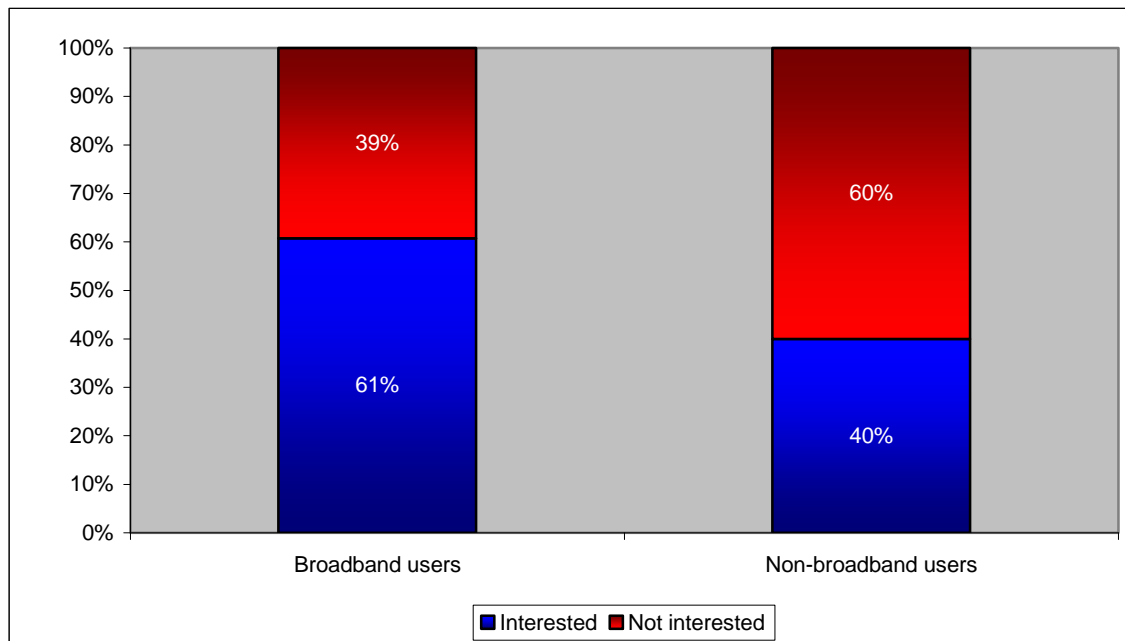
4.2.3 Interest in VoIP

Respondents expressed a relatively high interest in VoIP. Fifty-two per cent of internet households that do not use VoIP considered VoIP a service they were interested in adopting in the future. Fifty-one per cent of households intending to subscribe to an internet service were also interested in using VoIP in the future. Despite this interest, qualitative research found that the participants felt it was 'too hard' to take it any further by either seeking more information on VoIP or trialling a service.¹⁷

¹⁷ Woolcott Research, *Telecommunications Usage and Expectations*, April 2007: Total respondents, n=1600.

A higher proportion of broadband users were interested in taking up VoIP in the future compared with non-broadband users.

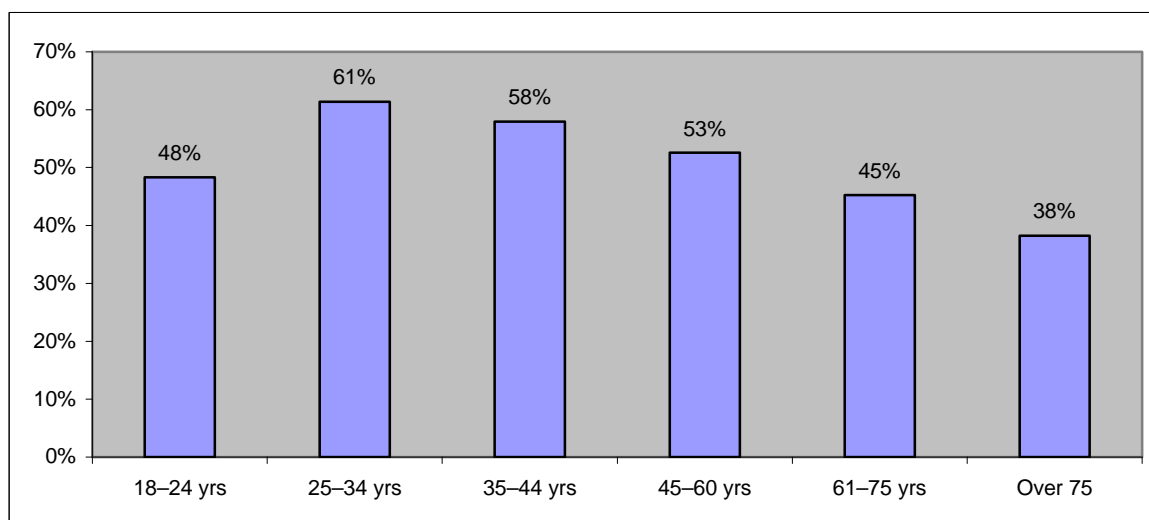
Figure 6: Interest in taking up VoIP split by type of internet access



Source: Woolcott Research, *Telecommunications Usage and Expectations*, April 2007: Total respondents, n=1600

Reflecting the VoIP user profiles, it was the younger age groups and those on higher incomes that were the most interested in taking up VoIP in the future. There was a strong level of interest in VoIP within the 25–34 and 35–44 age groups.

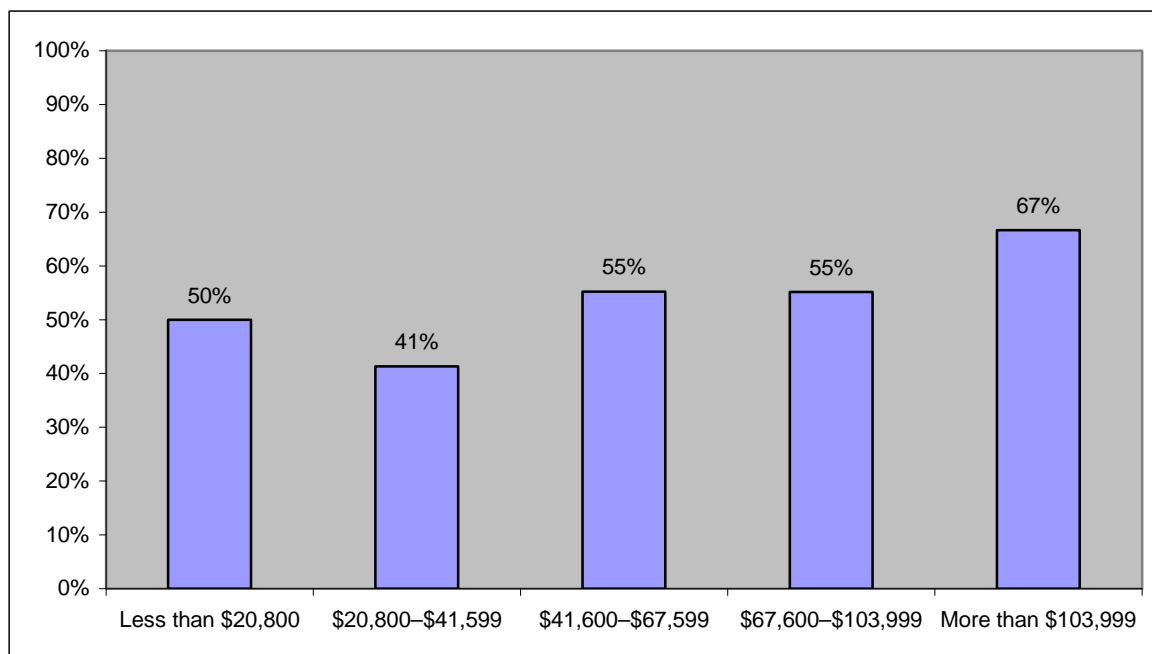
Figure 7: Interest in VoIP by age group



Source: Woolcott Research, *Telecommunications Usage and Expectations*, April 2007: Total respondents, n=1111

Respondent households earning more than \$103,999 a year also expressed a strong interest in VoIP. A high proportion of respondents in households with incomes of less than \$20,800 interested in VoIP were students, had home duties or were retired. These households may be interested in VoIP as a way to save fixed-voice costs.

Figure 8: Interest in VoIP by income level of households

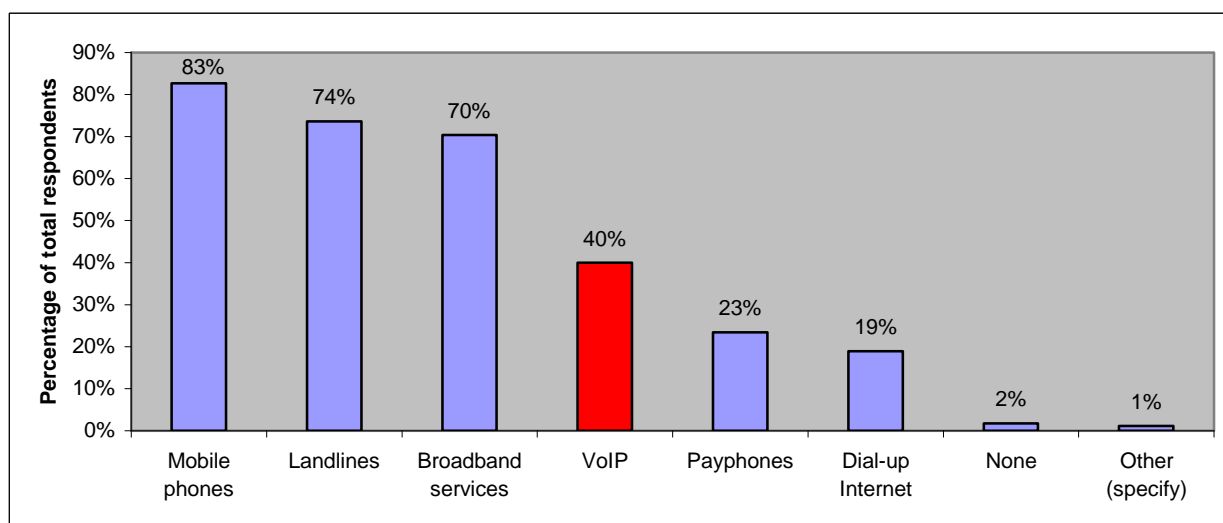


Source: Woolcott Research, *Telecommunications Usage and Expectations*, April 2007: Total respondents, n=1600
 Note: income categories have been consolidated for this graph and 'Don't know/refused' answers have been removed.

4.2.4 Future services

Forty per cent of respondents considered that VoIP would be critical to people within their household in the future. VoIP came behind mobile phones, landlines and broadband in terms of importance, but ahead of payphones and dial-up internet.

Figure 9: Services critical in the future



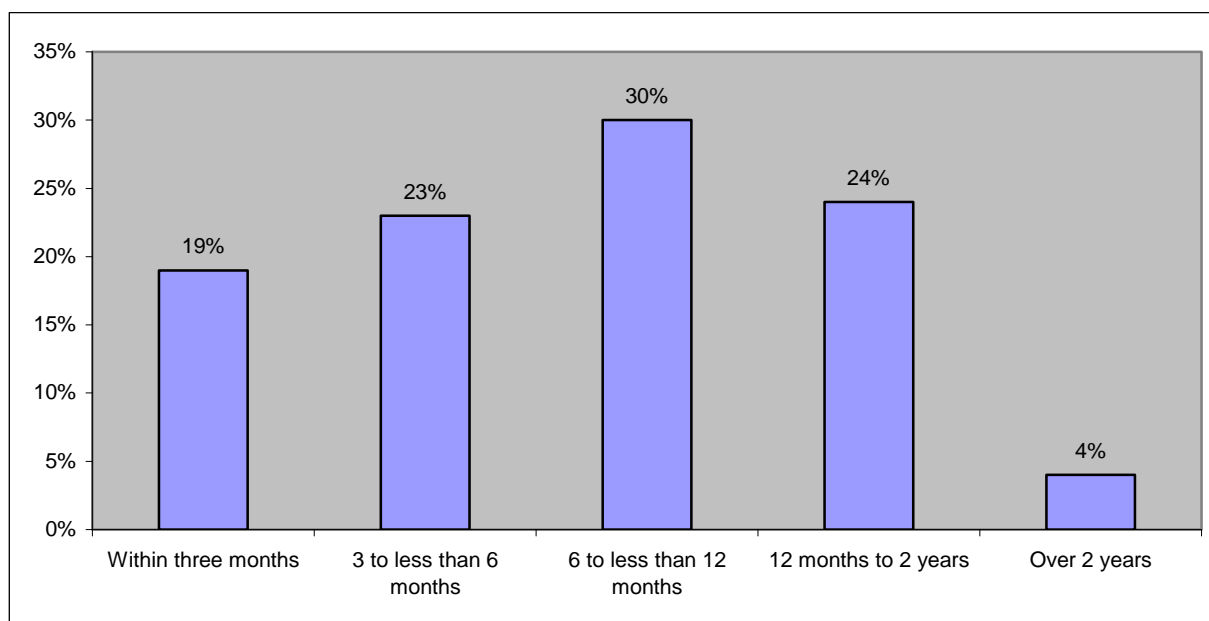
Source: Woolcott Research, *Telecommunications Usage and Expectations*, April 2007: Total respondents, n=1600

4.3 SMEs and VoIP

4.3.1 VoIP users

SME take-up of VoIP, similar to consumer take-up, is relatively limited. A May 2007 Sensis[®] survey found that 13 per cent of SMEs use VoIP.¹⁸ An additional 14 per cent are intending to adopt VoIP and more than 70 per cent of these businesses are planning to take up VoIP within 12 months.¹⁹

Figure 10: Intention to adopt VoIP timeframes



Source: Sensis[®], *Business Index*, May 2007: Total respondents, n=1398

4.3.2 Satisfaction with VoIP

VoIP users tended to be very or quite satisfied with their service (66 per cent), with eight per cent quite or very dissatisfied. Reasons for dissatisfaction included the VoIP service being too slow, drop-outs, the service being too expensive, and the voice quality being too poor.²⁰

4.3.3 Business characteristics

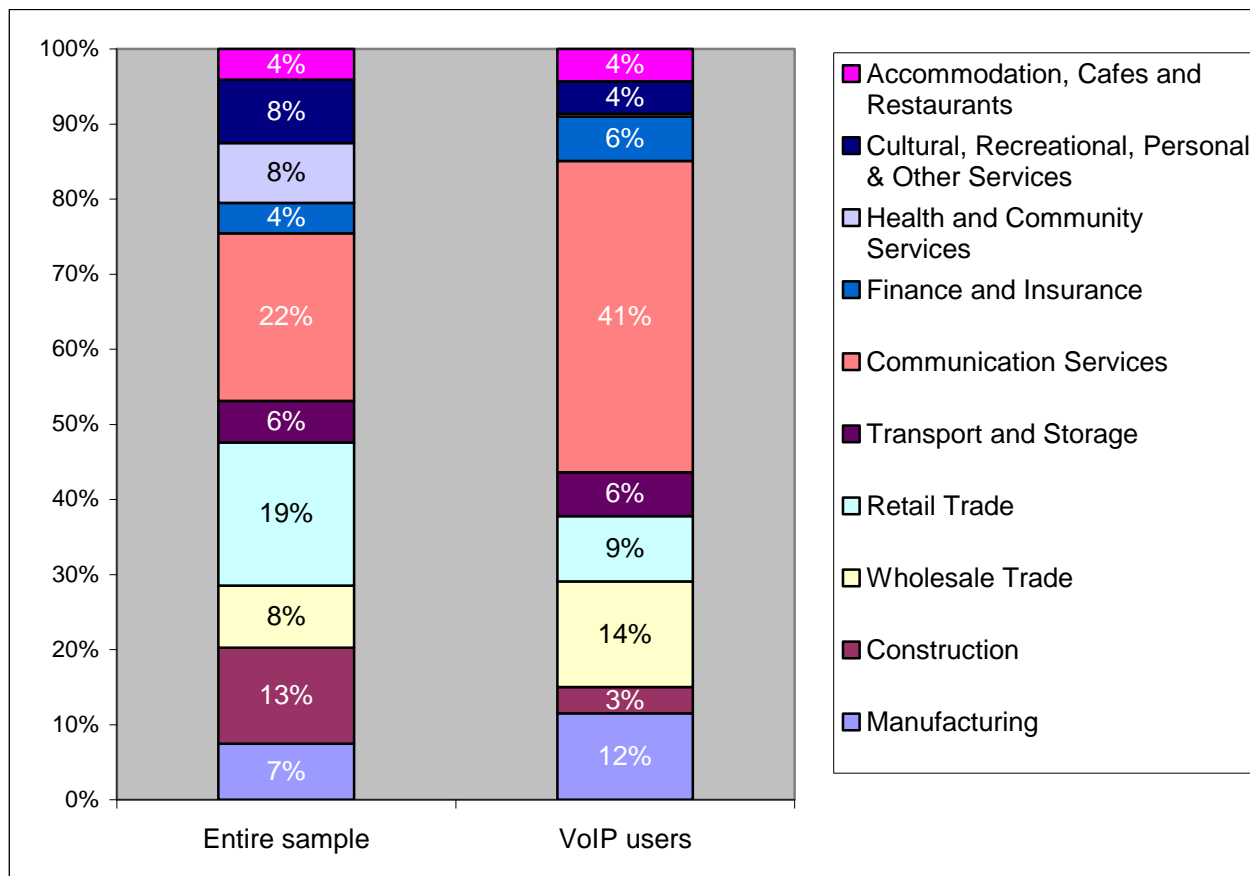
The communication services industry has a high proportion of VoIP users. A large number of VoIP users were also in the wholesaling and manufacturing industries.

¹⁸ Businesses with 200 employees or fewer

¹⁹ Sensis[®], *Business Index*, May 2007: Total respondents, n=1800

²⁰ Sensis[®], *Business Index*, May 2007: VoIP users, n=271

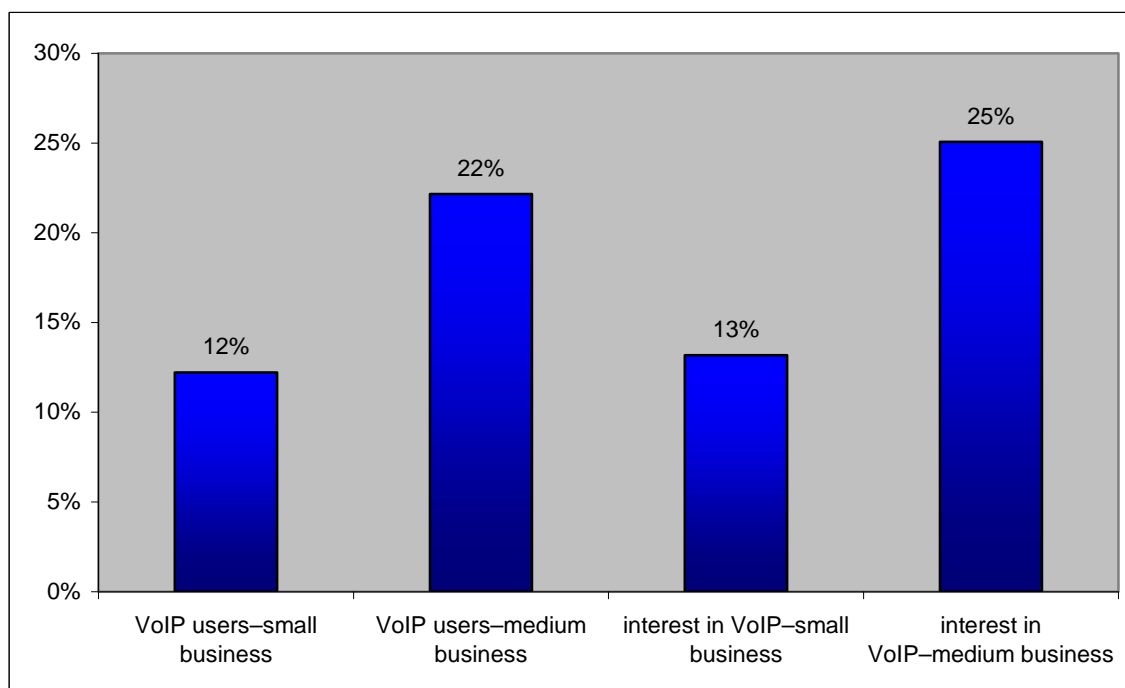
Figure 11: VoIP users by industry



Source: Sensis®, *Business Index*, May 2007: Total respondents, n=1800

Medium-sized businesses are more likely to be users of, or intending to adopt, VoIP.

Figure 12: VoIP users and businesses intending to take up VoIP

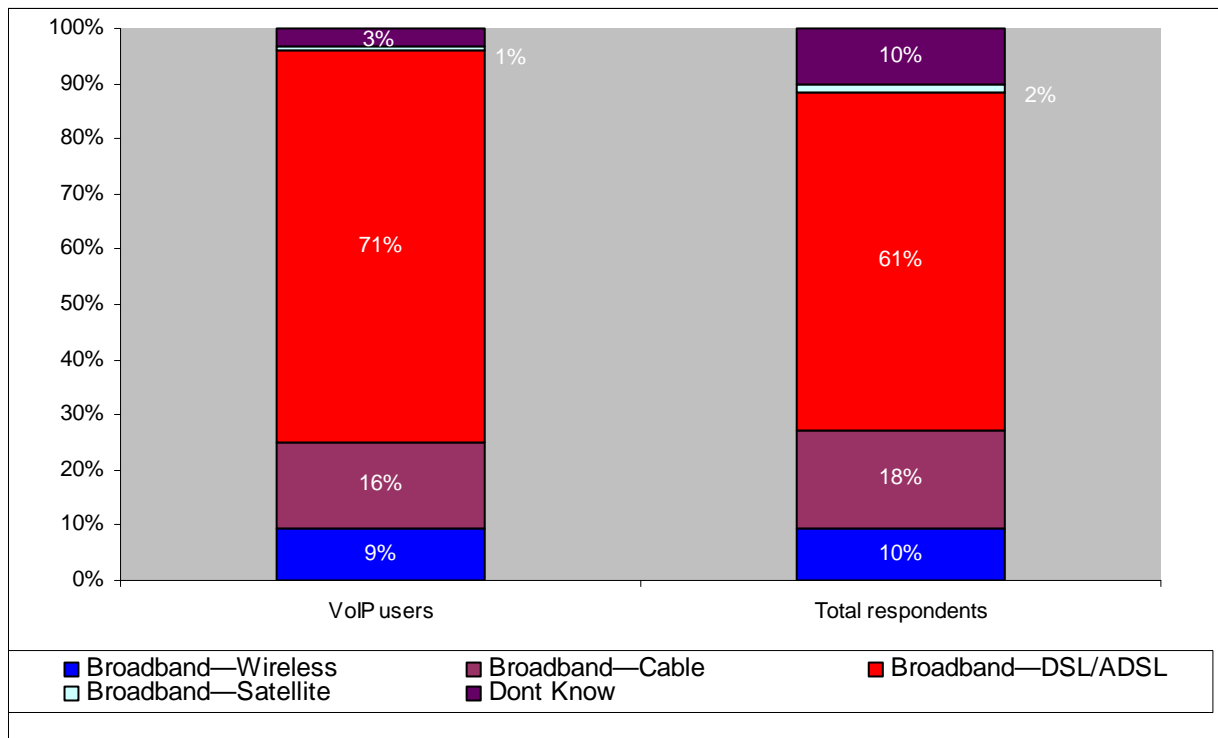


Source: Sensis®, *Business Index*, May 2007: Total respondents, n=1800

Broadband access

A high proportion of businesses using VoIP have a DSL/ADSL connection. Given the bandwidth requirements of VoIP, it is not surprising that users are also more likely to know what type of broadband connection they have.

Figure 13: Broadband connections



Source: Sensis®, *Business Index*, May 2007: Total respondents, n=1800

5 Conclusion

The near ubiquitous availability and increased adoption of broadband by Australian consumers have underpinned the transformation of the communications market.

No clearer indication of this transformation can be seen than in the area of voice communication services with the emergence and development of voice over internet protocol (VoIP).

The increasing availability of VoIP services in conjunction with recent broadband infrastructure developments in the form of naked DSL has the potential to significantly transform the Australian fixed-voice market.

While current levels of VoIP usage are still comparability low for the residential and small markets, increased awareness of these services as possible alternatives to traditional telephony, particularly amongst key segments of the Australian population, and the potential benefits VoIP services have to offer in terms of cost reductions, indicates that there is a sizeable potential untapped customer base. However, any perceived benefit will need to be considered in light of potential trade-offs such as quality of service.

Appendix A: Survey methodology

Woolcott Research *Telecommunications Usage and Expectations*

The consumer survey research consisted of a series of qualitative focus groups and in-depth interviews, as well as a national quantitative survey.

Qualitative (focus groups) phase

The qualitative phase was made up of 12 focus group discussions in five locations, as well as eight in-depth interviews in remote areas.

The focus group discussions were conducted among residential customers selected on the basis of age and a self-measure of technological literacy or confidence. Focus group respondents were recruited from a random sample, with each group containing between eight and ten participants.

Quantitative phase

The quantitative phase consisted of a representative quantitative telephone survey of 1,600 respondents.

Sampling

The electronic WhitePages[®] was used as the sampling frame for Australian households and the interviews were undertaken using computer-assisted telephone interviewing (CATI). All respondents were aged over 18 years and screened to ensure they were the main or joint decision-maker in relation to at least one household telecommunications service.

More information on the Woolcott survey methodology is in the ACMA publication *Telecommunications Today: Consumer attitudes to take-up and use*, September 2007.

Sensis[®] May 2007 *Business Index* survey

The Sensis[®] May 2007 *Business Index* survey is based on telephone interviews conducted with 1,800 small and medium business proprietors.

Quotas were set for geographical location and business type to ensure a set distribution of respondents.

The survey results were weighted by the selected Australian and New Zealand Standard Industrial Classification (ANZSIC) divisions within the metropolitan and non-metropolitan areas of each state and territory to help ensure that the sample reflected SME population distribution.

More information on the Sensis[®] survey methodology can be found in the Sensis[®] publication *Sensis e-Business Report – The Online Experience of Small and Medium Enterprises August 2007*.²¹

²¹ <http://www.about.sensis.com.au/resources/sebr.php>

Appendix B: VoIP providers²²

²² Market Clarity, 'Aussie VoIP List', 5 September 2007, accessed 12 October 2007, <<http://www.marketclarity.com.au/voip/>>

.Netcall	Aussie Dial
1800 Bite Me	Aussie PABX
2EasyTel	Australia Internet Solutions (AINS)
3Cubed	Australian Satellite Services
aaNet	Australian Technology Partnerships (ATP)
AAPT	Auzzie.Net
Aardvark	Ballarat Community Enterprise
AccessIQ	BarNet
Ace Communications	BaxIT
Acenet	Better Telecom
AceTel	Biway Communications
Activ8me	Blackstump Solutions
AdvanceNet	Blue Fire
Ai Tel Pty Ltd	Bluemaxx Communications
AIP Telecom (Australia IP Telecom)	Brennan
Allegro Networks	British Telecom
Alpha Net (Freecall.net.au)	Broadband Anywhere
Always Online	Broadband Phone (BBPGlobal)
Amityone	Broadband Solutions
Anratel Communication	Brown Bear Internet
Arrow Voice & Data	Buzz Phone
Aspark	CBD Wireless Broadband
AstraTel	ccgIT
Astron	Centercom Communications
ATU Internet	Centrix Phone

Chariot Internet	Empcom
Chi Tel	Empicentre Systems
Clear Networks	Endeavour Connect (ecOffice)
Clever Communications Australia	Engin
Clove	Evertel Communications
Commander Communications	eVoIP
CommsLogic	Exetel
CommSys	ExtremeDSL
Comstech Systems	FABfone
Comvergence	Faktortel
Conexim AUSTRALIA	Femtech
Connect2Talk	First Reach
Connexus	Fonebox
Converged Communications	Freshtel
Coyote Talk	Frontier ISP
CyberTel	FutureWeb
D2P	Generation IT
Datawave IT	Global Touch Solutions (GTS)
DCSI Internet	Globechat
Delacon	Glocomm Broadband
destra Corporation	GoConnect (GoTrek VoIP)
Digicall	Golden IT
Digital Armour	GoTalk
Digital River	Goulburn Internet
DragNet	Grey Mouse

Harrizontech	Itro.Net
Helbig Consulting	iVox
Highway Internet Services	Jump Internet
Highway1 (Talkway)	Kmoo
HiTech Telecom	Koala Telecom
Hotkey Internet Services (TalkBroadband)	Koncept-VoIP
HugoNet	Lime Telecom
iBasis	Linqk
iiNet	Locall Australis
Integra Phone	M2 Connect
Intelligent IP Communications	M5
International Network Engineers (INE)	Macquarie Telecom
Internet Australis	MamaKall
Internet Tasmania	MBC Technology
Internet Telecom	MBIT Technologies
Internode (Agile)	Mercury Connect
IntraPower	Mobion
IP Systems	Mobtech
iProvide	Mondotalk
IPTel Now	MyISPInternet
iSage Internet Services	MyNetFone
ISPhone	MyNetPhone (Mamakall)
ispOne (OneVoice)	Mytel
ITG Internet	NationTel

NEC Business Solutions	OzTell
Nehos Communications	Pacific Atlas Telecom
Neighborhood Cable	Pacific Internet
Netaware	Pacific Teleports
Netforce	PCA NU Systems
Netspace	PennyTel
Nettalk	People Telecom (people iPhone)
NetXP	Phone Business
New Telecom	Phone Snoopa
NewSat Networks	PimTel
NEXTEP (NEXVoice)	Platinum Connect
NGE	Powerband
NSC Carrier Technologies	PowerTel
NTT Australia	Preferred Internet Provider
O2wire	Primus (TalkBroadband)
OfficeLink+	Qtec Systems
One Network	Qualmark
Online dB (ODB)	Resonance Networks
Optell Telecom	Reynolds Internet Technology
OptraWeb	Ring-Now
Optus	Saco Technology
Orbits Online	Samsung Communications Network
Orion Satellite Systems	SeaComms
Overflow Internet Services	Seanet.com.au
OzSite Internet Services	Shoalnet Fastrac Internet Services

SightSpeed	Theseus
Silogen	TPG
Silver Communities	TraiTel Telecommunications
Simtex	TransACT
SIP Telecom	Tribal Technology
SIPme	Triveni Infotech
Skype	TSN Internet
Slingshot (iTalk)	Uecomm
Smart Voice	Up 'n' Away Net Solutions
SmartCHARGE Australia	ValueNet
SOUL (Kooee, B Digital, DigiPlus)	Vanco
Spring Mountain Technology	*VoiseLine and Voise Talk
Summit Internet Solutions	Vcall
SuperPhone Australia	VDV Communications
Symbio Networks	Veritel (Vcall)
Syndeticom	Verizon
TalkNet	Viper Networks
Talkscape	Virtual City
TasTel	VitalTel
Tech Patrol	VOBphone
Techsus	Voice2Net Telecom
Tel.Pacific (iTalk Broadband)	VoiceLogic
Telebrokers Telecom (NetFone)	VoiceValley
Teliix	VoIP Internet Telephones
Telstra	VoIP Online

VoIP World Access (VoIPWA)
VoIP4U
VoIPEX
VOIPStra
Vois
Voise (was Nella Networks)*
Vonic
Voxalot
Voxcom
VtalkVoIP
Webace
WebShield
Webtel
Welcome Telecommunications
West Australian Networks (Westnet, also known as
WAN)
Wholesale Communications Group (VOBPhone™)
WidebandNetworks
Widelinx
WINC
Winshop Internet
World DialPoint (Oz-deals)
Xeracom