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Australian Communications and Media Authority

Communications report 2009–10 series

Report 1— Australia in the digital economy: The shift to the online environment

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Report 1—Australia in the digital economy: The shift to the online environment

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Contents

Introduction

This report is the first in a series of four research reports to be published as part of the ACMA's communications report series*.* Other reports in this series include:

> Report 2—Take-up and use of voice services by Australian consumers

> Report 3—Australian consumer satisfaction with communication services

> Report 4—Changing business models in the Australian communication and media sectors: Challenges and response strategies.

This suite of reports is designed to complement the ACMA *Communications report 2009–10* which is produced in fulfilment of reporting obligations under Section 105 of the *Telecommunications Act 1997* (the Act). The Act requires the ACMA to report on the performance of carriers and carriage service providers with particular reference to consumer benefits, consumer satisfaction and quality of service.

These four reports also form part of the ACMA's ongoing research and reporting program (*Research at the ACMA: research program overview 2010–11)* which is available on the ACMA website.

The communications report series seeks to inform ACMA stakeholders about convergence and the digital economy and their impact on communications and media services.

The term 'digital economy' covers the global network of economic and social activities that are enabled by digital information and communication technologies such as the internet, mobile and sensor networks.[1]

As an evidence-based regulator, the ACMA has an interest in monitoring and understanding the developing digital economy and its impact on the industries that it regulates, particularly in relation to:

> regulating for the citizen in an IP-based media and communications environment where usage of voice over internet protocol (VoIP), mobile communications and the internet continues to grow, which in turn provides challenges for safeguards, such as access to the emergency call service and online security

> voice regulation, where continued growth in VoIP usage and the number of people identifying mobile phones as their main form of communication poses challenges when it comes to applying regulatory requirements that are based on traditional fixed-line voice services

> supporting consumers making informed decisions in an environment of ongoing network, device and service innovation

> regulating content in an environment where content is increasingly available on multiple platforms including the internet, mobile and traditional broadcasting networks.

[1] Department of Broadband, Communications and the Digital Economy, *Australia's Digital Economy: Future Direction,* 14 July 2009.

Summary

There is a growing body of evidence showing that more Australians are actively engaging in many aspects of the digital economy, facilitating existing and new forms of social and economic interaction. The following summary of key indictors provides insight into some aspects of the developing digital economy, specifically those which relate to take-up and use of the internet.

Connectivity

Many Australians today have access to the internet at several locations, with most having a broadband internet service in their home. At June 2010, 77 per cent of the population aged 14 years and over had access to the internet at home, 40 per cent at work and 15 per cent at locations other than home or work. Sixty-six per cent of persons 14 years and over had a home broadband service, up from 63 per cent at June 2009.

Of those Australians using the internet, the home and work environment remained the most common sites of internet use with 95 per cent of internet users using the internet at home and 46 per cent at their place of work during June 2010.

The increasing capacity of mobile networks and devices to support triple play services (voice, data and video) is also changing the dynamics of internet use by facilitating increased flexibility in terms of how and where Australians go online while at the same time complementing existing fixed-broadband networks. Thirteen per cent (2.4 million persons) of persons in Australia aged 14 years and over were estimated to have undertaken some form of activity online via their mobile phone during June 2010, compared to nine per cent (1.6 million persons) during June 2009.

Data from the Australian Bureau of Statistics (ABS) also outlines the increasing significance of mobile networks as a complementary service in terms of providing Australians with access to the internet. At June 2010, there were 3.5 million mobile wireless broadband subscribers in Australia accessing the internet via a dongle or datacard connected to a computer, compared to 2.8 million at June 2009. In addition, 30 per cent of mobile phone handsets (6.8 million) were internet-enabled at June 2010. During the same period the number of fixed-broadband subscribers (e.g. DSL) remained fairly steady, further suggesting that mobile wireless broadband is growing in importance as a complementary broadband service.

Small and medium enterprises (SMEs)—businesses employing one to 200 employees—continued to play a significant role in the development of the digital economy through take-up and application of information and communication technologies (ICT) to business processes and service delivery. At June 2010, 94 per cent of SMEs were connected to the internet with 99 per cent of these using a broadband service. Sixty-four per cent of SMEs used internet-enabled 3G mobile phones.

SMEs also used a range of other internet and IP based technologies and applications at June 2010, including web sites (61 per cent), VoIP (26 per cent of SMEs) and mobile email (25 per cent) with take-up of VoIP and mobile email experiencing the highest proportional increase since June 2009; 30 per cent and 47 per cent respectively.

The growth in domain name registrations reflects the increasing use of the internet as a marketing and service delivery channel by individuals and organisations in Australia.

At June 2010, there were 1.76 million second-level registered domain names compared with 1.42 million at June 2009, an increase of 24 per cent.[2]

Capability

Over the past five years, the frequency of internet use in Australia steadily increased to the point where 28 per cent of the total Australian population aged 14 years and over were estimated to be 'heavy' internet users (online more than 15 hours a week) at June 2010. A further 27 per cent were considered to be 'medium' internet users (online between 7 and 15 hours a week) and 23 per cent 'light' internet users (online up to 7 hours a week).[3] The proportion of the population not using the internet on a weekly basis declined to 22 per cent at June 2010 from 33 per cent at June 2005.

While all age groups recorded significant increases in weekly internet users, persons aged 55–65 years and 65 years and over were still less likely to use the internet than other age groups. At June 2010, 55 per cent of persons aged 65 years or older and 27 per cent of persons aged 55–64 years did not use the internet on a weekly basis, compared to an average of 22 per cent for the total population aged 14 years or over.

Australians engaged in the digital economy through a range of online activities however communications, research, information, banking and finance and general browsing activities tended to dominate. During the month of June 2010, 79 per cent of persons using the internet via a computer went online for communication purposes (email, instant messaging or VoIP), 75 per cent for research and information purposes, 64 per cent for banking and finance related activities and 61 per cent general browsing.

While increasing numbers of Australians are using the internet via their mobile phone, the level and scope of online activities performed via mobiles was significantly lower in comparison to activities performed online by a computer. This was particularly the case in relation to e-commerce activities were only seven per cent and 19 per cent of mobile phone internet users went online via their mobile for shopping or banking purposes respectively during June 2010, compared to 28 per cent and 64 per cent for persons using the internet via computer.

Similarly, activities relating to communications, research/information and transactions featured prominently in the activities undertaken by Australian SMEs online. At June 2010, 98 per cent of online SMEs used the internet to communicate with customers and suppliers via email, 91 per cent looked for information about products and services, 88 per cent went online for banking purposes and 88 to look for suppliers, while 74 per cent received payments for goods and services online and 81 per cent made payments online.

Confidence

The internet is making access to information more convenient and efficient. As a result, the volume of information and content accessed by Australians via the internet has steadily increased over 2009–10. For example, during the June quarter of 2010, 155,503 terabytes of data were downloaded in Australia compared to 99,249 terabytes during the June quarter of 2009. Fixed-line networks accounted for 91 per cent of data downloaded during the June quarter of 2010.[4]

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[2] Excludes '.gov.au'. Within the .au domain, there are several second level domains (2LDs). Each serves a specific type of enterprise. For example, '.com.au' serves commercial organisations and '.edu.au' services educational institutions. For a full list of second level domains, see www.auda.org.au/domains/au-domains/.

[3] Terms relating to 'heavy,' 'medium' and 'light' defined by Roy Morgan Single Source, June 2010.

[4] Comparative data is not available for June 2009 as ABS did not collect volume of data downloaded by access technology prior to the December quarter of 2009.

The participative web, encompassing social networking and user generated content (UGC), continues to be a major driving force in the increasing intensity of online participation. During June 2010, 8.7 million Australians accessed main stream social networking/UGC sites such as Facebook and YouTube from home, spending in total more than 41.5 million hours on these sites. Facebook continued to maintain its dominance of the social networking/UGC market in Australia, accounting for 81 per cent of time spent on social networking/UGC sites and 82 per cent of web pages viewed during June 2010. The business sector in Australia is slowly recognising the potential of social networking for marketing and business networking purposes. At June 2010, approximately 10 per cent of SMEs connected to the internet used online social network channels for business purposes such as advertising and awareness raising.

The internet has empowered many consumers economically by making it easier to locate goods and services and compare costs. The internet has also empowered businesses by enabling the development of new online markets, often with price differentiation between offline and online purchasing channels, which has in turn encouraged the continued growth of internet commerce in Australia. According to the ABS, income from the sale of goods and services online reached $123 billion in June 2009 compared with $81 billion in June 2008. (ABS data relating to June 2010 is not available as yet). Table 1 presents a summary of digital economy data in this report.

Table 1 Australia in the digital economy: summary metrics

Indicator	June 2009	June 2010
Connectivity		
Proportion of population having ever used the internet at June*	88%	89%
Proportion of population with a broadband connection at home at June*	63%	66%
Proportion of population having used the internet via their mobile phone during June*	9%	13%
Proportion of online SMEs with broadband at June	96%	99%
Proportion of SMEs using internet-enabled 3G mobiles at June	62%	64%
Number of '.au' domain name registrations at June†	1.42 million	1.76 million
Capability		
'Heavy' internet users in the population* (>15 hours online a week) at June	26%	28%
Proportion of internet users undertaking communications activities online during June*	n/a	79%
Proportion of internet users undertaking research and information searches online during June*	76%	75%
Proportion of internet users undertaking banking or financial activities online during June*	n/a	64%
Proportion of internet users buying or selling online during June*	n/a	28%

Confidence		
Value of internet commerce at June‡	$123 billion	n/a
Number of web pages viewed from home during June	16.8 billion	17.2 billion
Number of persons accessing social networking/UGC sites from home during June	8.3 million	8.7 million
Number of hours spent on social networking/UGC sites at home during June	32.1 million	41.5 million
Number of Australians accessing main online news sites from home during June	5.9 million	6.1 million
Volume of data downloaded via the internet (terabytes) during June quarter	99,249	155,503

**Persons 14 years and over.*

†Excludes domain names registered under '.gov.au'.

‡Defined as the value of goods/services purchased or ordered online regardless of whether paid for online.

n/a = Not available.

Note: Web metric data relates to persons two years and over using a broadband service from home.

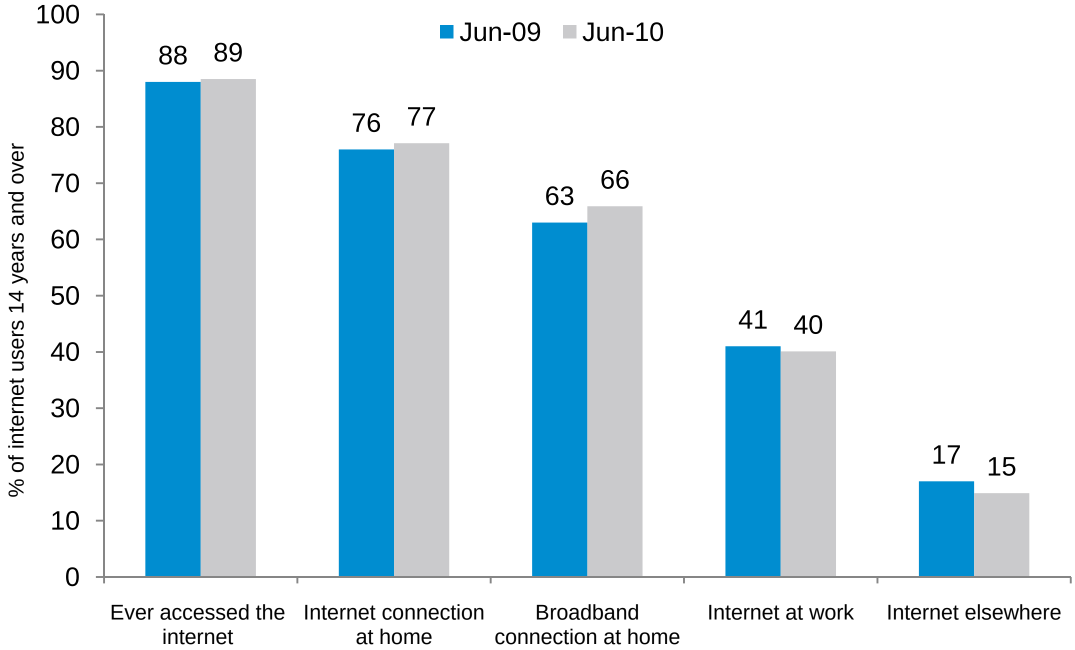
Connectivity

When measuring the digital economy, connectivity refers to the take-up of digital communications that facilitate participation in the online environment. This section focuses on connectivity as represented by individual and business take-up of the internet.

Take-up of the internet

The majority of Australians now have access to the internet from a range of locations, whether at home, work or elsewhere, and have some form of broadband service in their home. At June 2010, approximately 89 per cent of Australians aged 14 years and over were estimated to have used the internet at some point in their life. Seventy-seven per cent had access to the internet at home, 40 per cent from work and 15 per cent from other sites such as a library or educational institution. Sixty-six per cent of persons 14 years and over were estimated to have a broadband service in their home at June 2010 compared to 63 per cent at June 2009.

Figure 1 Access to the internet

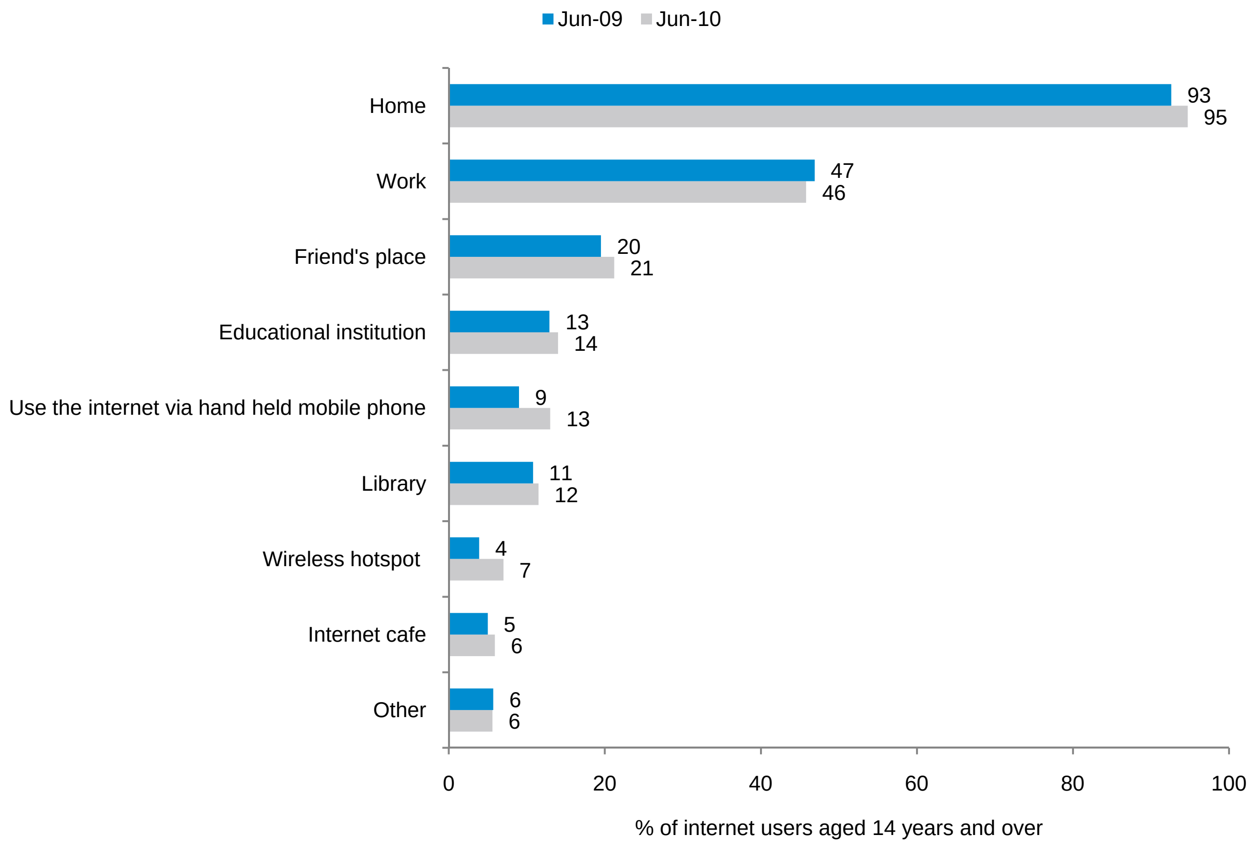


Source: Roy Morgan Single Source, June 2010.

Sites of internet use

While Australians continue to use the internet from multiple locations, the home and work environments remain the dominant sites for internet use (Figure 2). During 2010, 95 per cent of internet users were estimated to have used the internet from home, 46 per cent from work and 21 per cent from a friend's place—consistently the top three sites of internet use in Australia. However, internet use via mobile phones is growing.

Figure 2 Place of internet use



Note: Multiple responses allowed.

Source: Roy Morgan Single Source, June 2010

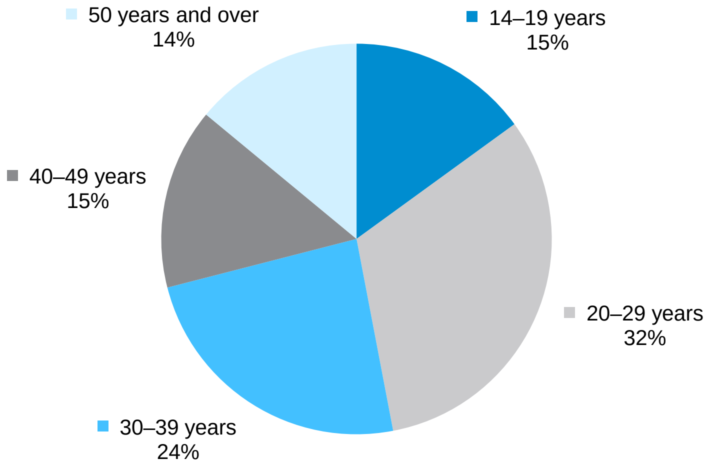
Wireless internet

Continuing technological innovation is transforming some traditional communication devices such as the next generation of internet-enabled mobile phones, allowing internet access independent of location within mobile coverage areas. The increasing capacity of mobile networks to support triple play services (voice, data and video), plus the availability of internet-enabled mobile phones and other wireless consumer devices, is changing the dynamics of internet use and facilitating increasing flexibility in terms of how and where Australians go online.

During June 2010, 13 per cent of the Australian population aged 14 years and over (2.4 million persons) were estimated to have undertaken some form of activity online via their mobile phone compared to nine per cent (1.6 million persons) during June 2009. This represents an increase of 50 per cent in terms of mobile phone internet usage. The majority of mobile handset internet users also used fixed-internet services reinforcing the complementary nature of mobile internet. Figure 3 provides an age profile of persons using the internet via their mobile phone in Australia. Persons aged

20–29 and 30–39 years comprised the majority of mobile phone internet users at June 2010, accounting for 32 per cent and 24 per cent respectively of mobile internet users. Other age groups showed a consistent level of usage accounting for approximately 14–15 per cent of mobile phone internet users.

Figure 3 Age profile of persons using the internet via their mobile phone, June 2010



Source: Roy Morgan Single Source, June 2010.

Excluding mobile handset internet subscribers, the ABS reports that the number of mobile wireless broadband subscribers (accessing a wireless broadband service via a dongle or data card) accounted for 36 per cent of all internet subscribers in Australia at June 2010, compared with 24 per cent at June 2009. On the basis of ABS data (Table 2), the number of mobile wireless broadband subscribers in Australia increased by 22 per cent during December 2009–June 2010, a significantly lower level of growth than recorded for previous periods, but still demonstrating a substantial growth in subscriber numbers.

Table 2 Broadband internet subscribers by technology type by quarter

Broadband access technology	Dec-08 ('000)	Jun-09 ('000)	Dec-09 ('000)	Jun-10 ('000)	% change from Dec-08 to Jun-09	% change from Jun-09 to Dec-09	% change from Dec-09 to Jun-10
DSL	4,208	4,171	4,178	4,246	–0.9%	0.2%	1.6%
Cable and fibre	916	931	909	n/p	1.6%	-2.4%	n/p
Satellite	80	90	107	113	12.5%	18.9%	5.6%
Mobile wireless*	1,369	2,024	2,838	3,455	47.8%	40.2%	21.7%
Other	112	117	27	n/p	4.5%	–77%	n/p
Total broadband	**6,685**	**7,333**	**8,059**	**8,768**	**9.7%**	**9.9%**	**8.8%**
Total internet subscribers	**7,996**	**8,420**	**8,951**	**9,569**	**5.3%**	**6.3%**	**6.9%**

**Includes data cards and dongles. Excludes mobile handset internet. Revisions: Dec 09 figures were revised by ABS in June 2010.*

Note: Fixed-wireless not identified separately due to revision of estimates for June 2009 and December 2009.

n/p: not published for specified quarter but included in total.

Counts of subscribers published prior to release of the June 2010 quarter ABS report may vary from numbers published in the June report due to ABS revisions.

Source: ABS, 8153.0–Internet Activity, Australia, June 2010.

In addition to traditional wireless dongle or datacard services, the ABS reported that there were approximately 6.8 million internet-enabled mobile handsets at June 2010, approximately 30 per cent of all mobile phone services in operation.

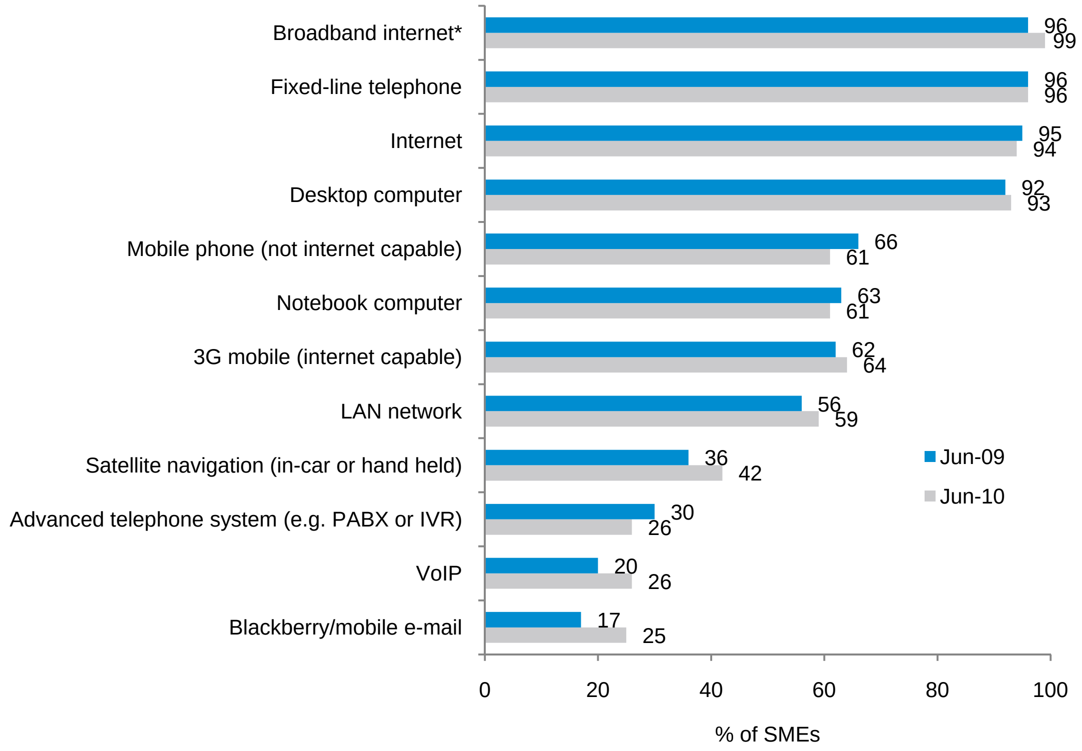
ABS numbers also show that the number of fixed-broadband subscribers (e.g. DSL) has increased marginally suggesting that mobile broadband is growing in importance as a complementary broadband service.

SMEs take-up of the internet

Australian businesses continue to play a central role in the development of the digital economy. This is achieved through the application of information and communications technologies (ICTs) to day-to-day business operations and the adoption of electronic business (e-business) service delivery practices.

As Figure 4 shows, Australian SMEs use a wide range of ICT in their business operations with the use of internet technologies already at near ubiquitous levels. At June 2010, 94 per cent of SMEs in Australia were estimated to be connected to some form of internet service, with 99 per cent of online SMEs utilising a broadband service. Sixty-four per cent of SMEs reported utilising internet-enabled 3G mobile phones, while 26 per cent used a VoIP service. During 2009–10, the highest proportional increases relating to take-up of ICT occurred in relation to the use of satellite navigation and VoIP, both increasing by six percentage points, while use of mobile email increased by eight percentage points.

Figure 4 SME use of selected ICT



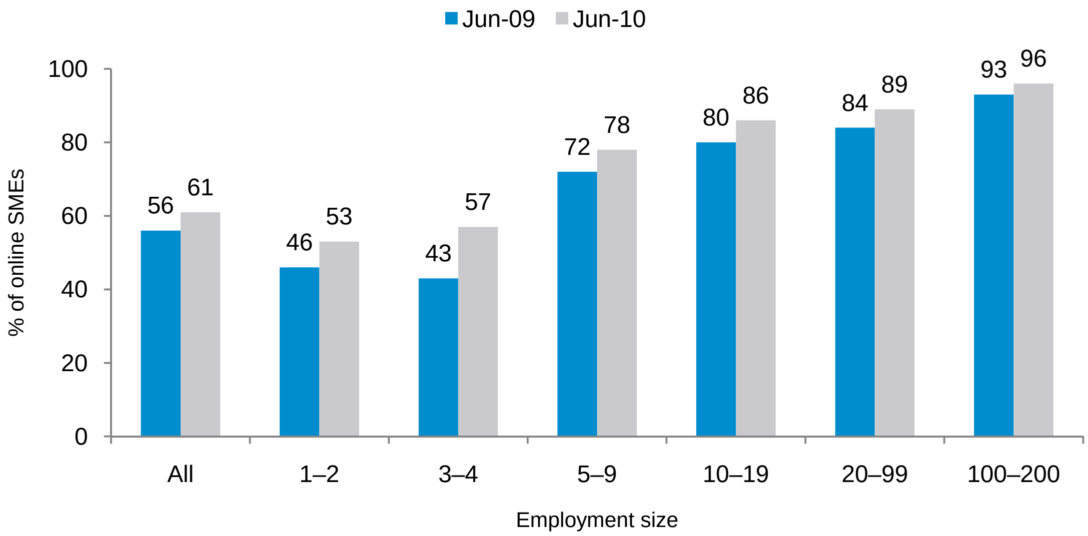
** Of all SMEs connected to the internet.*

Source: Sensis, Sensis e-Business Report: The Online Experience of Small and Medium Enterprises, September 2010.

Web-based service delivery

For many organisations, websites provide the most common means to access the growing online market. They are an effective marketing and distribution tool to support a range of transaction and information services, enabling '24/7' interaction beyond the traditional 'shop front' service delivery. Approximately 61 per cent of SMEs in Australia were estimated to have a website at June 2010 (Figure 5), compared with 56 per cent at June 2009. The use of websites increased across business employment sizes.

Figure 5 Website ownership by Australian SMEs



Source: Sensis, Sensis e-business report: The online experience of small and medium enterprises, September 2010.

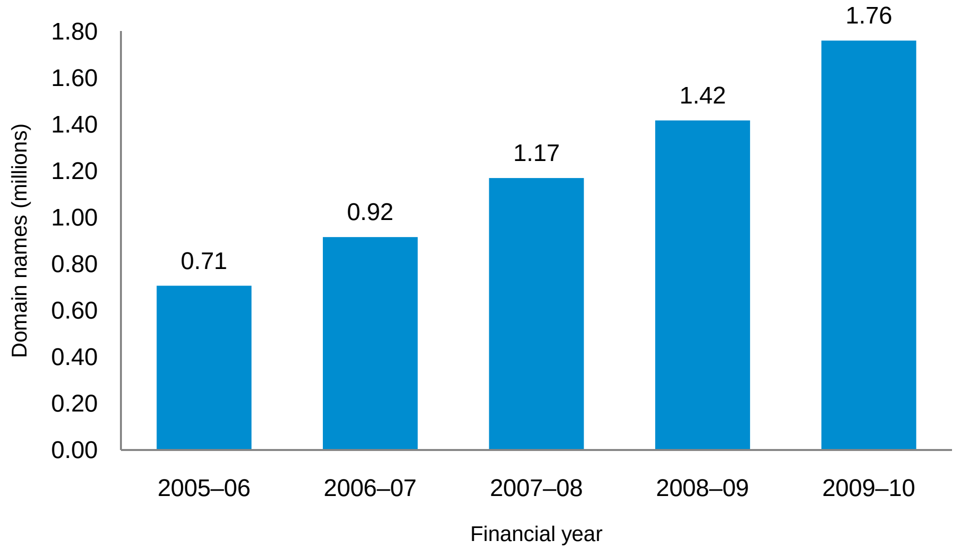
Growth in domain name registrations

The growth of domain names is a further indication of the growing online presence of Australian business and organisations. Domain names—the online address details of businesses with a website—are, in many cases, the first point of contact for potential customers seeking information and services online.

Within Australia, .auDA (.au Domain Administration Ltd) administers the '.au' country code top-level domain name, covering the second-level domains of '.com.au', '.edu.au', '.org.au', '.asn.au' and '.id.au'. The Australian Government Information Management Office (AGIMO) administers the '.gov.au' domain.

At June 2010, there were approximately 1.76 million domain names registered under the second-level domains (excluding .gov.au) compared with 1.42 million at June 2009, an increase of 24 per cent (see Figure 6). The growth in the number of '.au' domain names is also reflected by the 148 per cent increase in registrations from 2005–06 to 2009–10.

Figure 6 Number of '.au' domain names registered



Source: .auDA and Aus Registry.

The second-level domain of 'com.au' accounted for 86 per cent of '.au' domains (excluding '.gov.au') at June 2010.[5] The second largest category was the '.net.au' domain, accounting for a further 11 per cent of all '.au' domains at June 2010. The breakdown of second-level domain name registrations is shown in Table 3.

Table 3 Breakdown of '.au' second-level domains (2LDs), 30 June 2010

Second-level domains (2LDs)	Number	%
com.au	1,513,617	86%
net.au	185,029	11%
org.au	45,536	3%
asn.au	4,196	0%
id.au	10,917	1%
Total .au	**1,759,295**	**100%**

Source: auDA and Aus Registry.

[5] The second level domain name contains the top level and second level domains of an internet address.

Capability

Factors such as ongoing technological innovation, the declining costs associated with internet access and the growth of high speed internet services are reducing traditional barriers to the dissemination of information. This in turn has encouraged the creation of new sources of online information, avoiding the costs associated with traditional publication and marketing channels. Making access to information more convenient and efficient has been one of the most important impacts of the internet on society.[6] This, in addition to the dramatic growth of online content, is transforming the internet from a service peripheral to the day-to-day lives of many Australians to one which is intrinsic to their social and economic wellbeing.

Within this environment, individuals and businesses in Australia are developing new capabilities which are necessary for effective participation in the digital economy. Capabilities for the digital economy are defined here to be having the skills to effectively use digital communications and media. Evidence of developing digital economy capabilities in Australia includes increasing frequency of internet use, growth in the scope and variety of activity undertaken online and duration of time spent online.

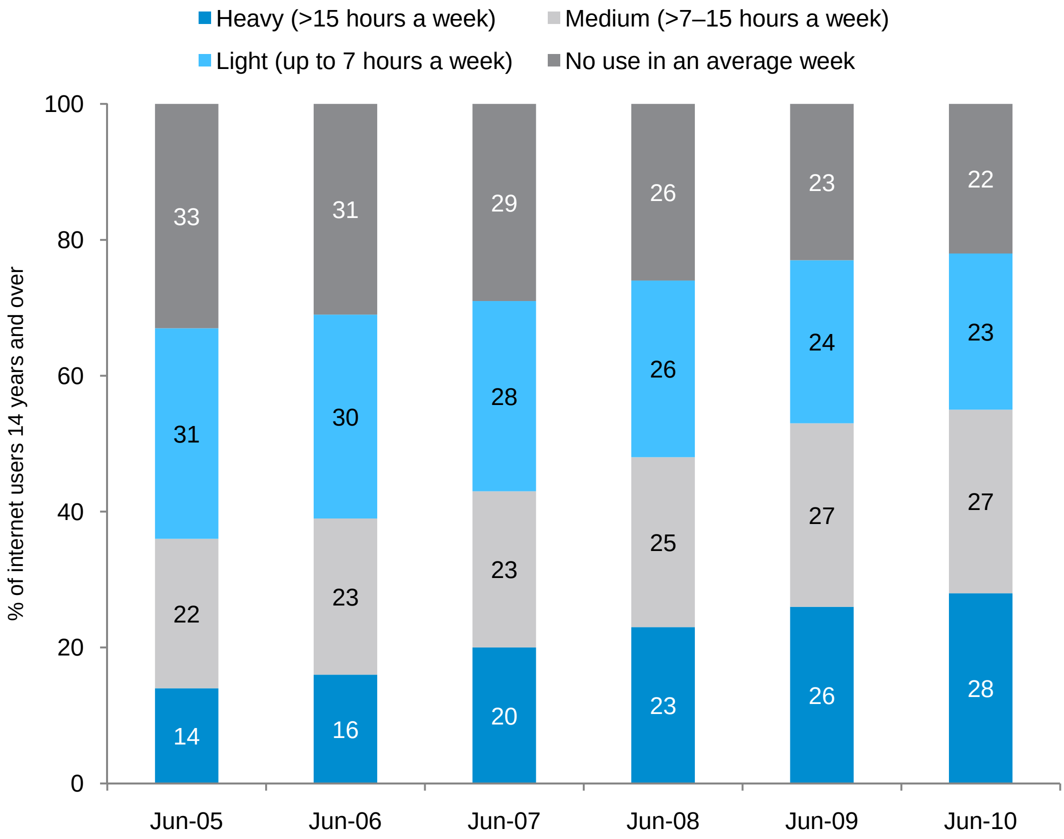
Frequency of internet use

There is an ongoing trend to more frequent internet use in Australia. Figure 7 shows that over the last five years, the proportion of heavy internet users (online for more than 15 hours a week) in the Australian population has doubled. At June 2010, 28 per cent of the Australian population aged 14 years and over were considered heavy users of the internet, spending more than 15 hours online a week. A further 27 per cent were medium internet users, going online between seven and 15 hours a week, while 23 per cent were light internet users, using the internet up to seven hours a week. A further 22 per cent of the Australian population aged 14 years and over were estimated to have spent no time online a week at June 2010, roughly the same proportion of persons at June 2009, but significantly less than the 33 per cent reported at June 2005.[7]

[6] The Information Technology & Innovation Foundation, *The Internet Economy 25 Years After .com,* March 2010.

[7] Definition of 'heavy', 'medium' and 'light' internet users defined by Roy Morgan Single Source.

Figure 7 Levels of internet use



Source: Roy Morgan Single Source, June 2010.

Frequency of internet use by age

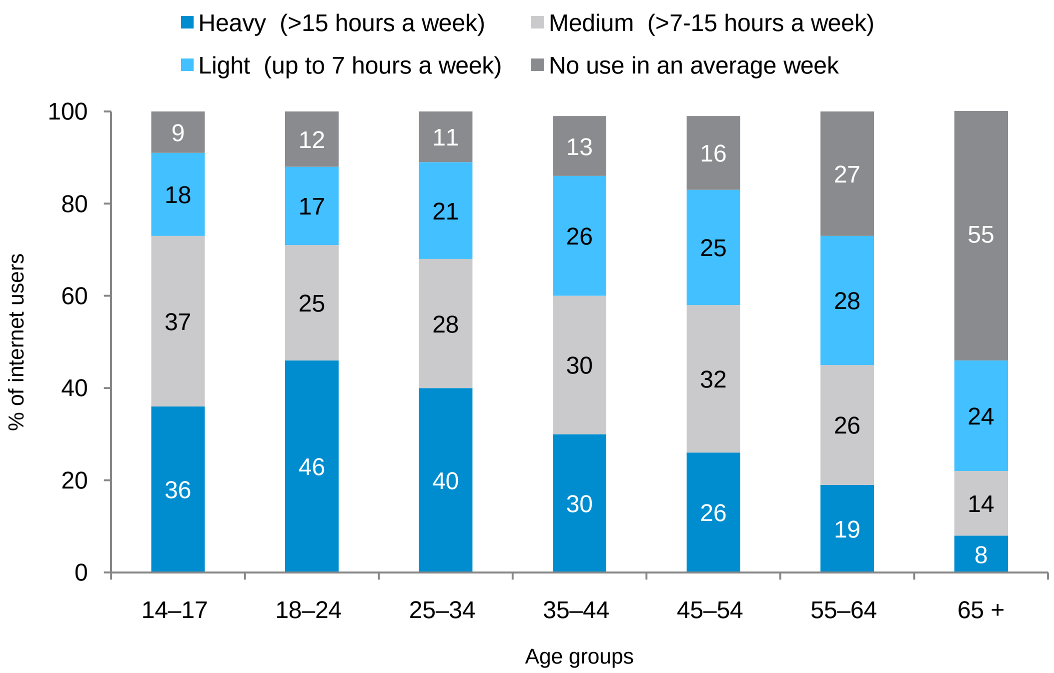
Between June 2005 and June 2010, the frequency of internet use (going online at least once a week) in Australia increased across all age groups, with the highest proportional increase occurring in the heavy internet category (>15 hours a week)—see Figure 8 and Figure 9. The proportion of heavy internet users in the Australian population increased by 100 per cent during the period June 2005 to June 2010

In terms of age, the highest proportional increase in heavy internet users occurred amongst older Australians as a consequence of the comparatively smaller online base for this segment of the population. Over this six year period, the increase in the proportion of the population identified as heavy internet users ranged from 64 per cent for 14–17-year-olds to 167 per cent for persons aged 65 years and over.

While persons aged 55–64 years recorded the highest proportional increase in heavy internet years (138 per cent) during the period June 2006 to June 2010, there has also been substantial increases (63 per cent to 122 per cent) for persons aged 14–17, 18–24, 25–34, 35–44, 45–54 and persons aged 65 years and over.

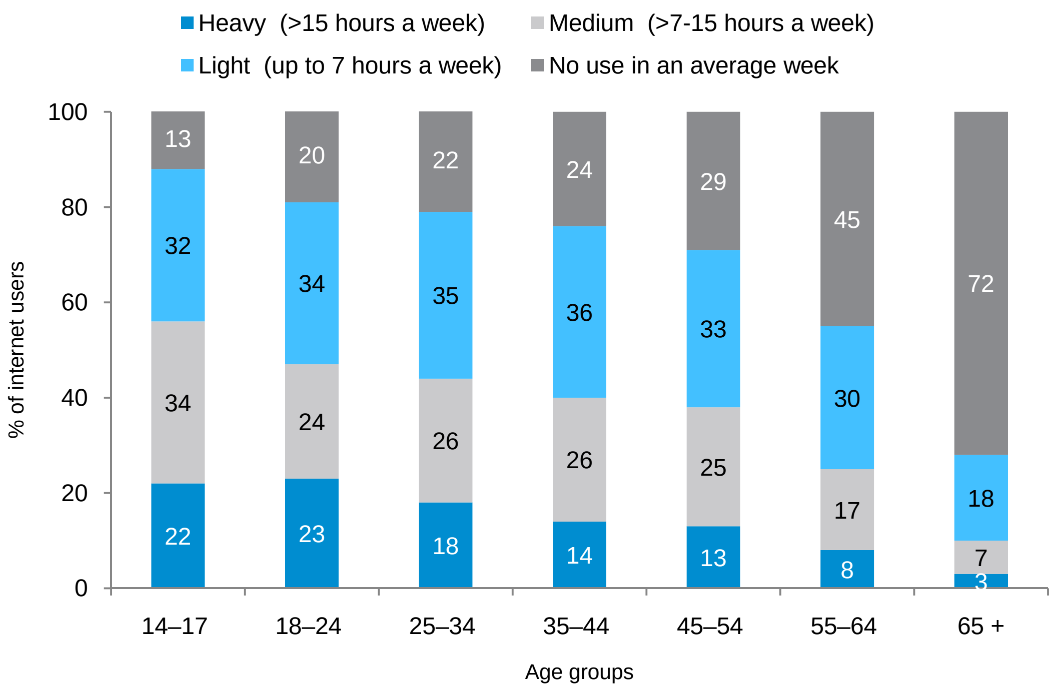
During the same period, the proportion of Australians reporting no internet use in an average week fell across all age groups. However, the majority of persons aged 65 years (55 per cent) did not use the internet during an average week compared with nine per cent to 27 per cent for other age groups.

Figure 8 Levels of internet use during by age, June 2010



Source: Roy Morgan Single Source, June 2010.

Figure 9 Levels of internet use during by age, June 2005



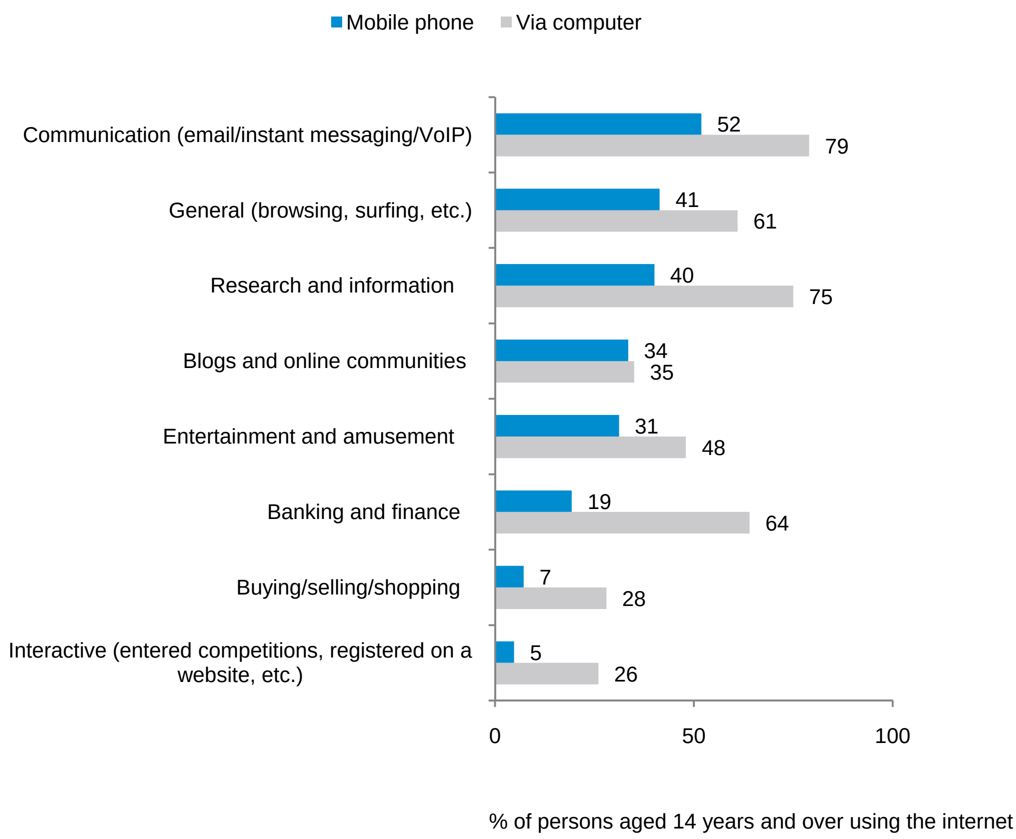
Source: Roy Morgan Single Source, June 2010.

Activities undertaken online

Australians engaged in a broad range of activities online during June 2010. For both access devices identified in Figure 10, the computer and the mobile phone, activities relating to communications, general browsing, research and information tended to dominate.

However, the degree to which these activities were engaged in varied considerably between devices. For example, 79 per cent of persons using the internet via a computer undertook communications related activities online (email, instant messaging and VoIP), 61 browsing and 75 per cent activities relating to research and information searches. This compared to 52 percent, 41 per cent and 40 per cent respectively for mobile phone internet users. Only a fraction of mobile phone internet users undertook e-commerce or banking related activities online in comparison to their computer internet counterparts, with 64 of computer internet users undertaking banking and finance activities online compared to 19 per cent for mobile phone internet users. Twenty-eight per cent of computer internet users shopped online compared to seven per cent for mobile phone internet users.

Figure 10 Online activities undertaken by access device during June 2010



Source: Roy Morgan Single Source, June 2010.

Mobile phones as a payment device

The use of a mobile phone as an alternative payment device for a wide range of goods and services is a method yet to gain traction in the Australian market. Mobile phone payment has been adopted in many parts of Europe and Asia and Australian consumers are generally receptive to the idea but have low awareness of mobile payment methods other than for mobile premium services.[8] ACMA qualitative research found that Australian consumers were particularly attracted to mobile payment services in instances where they would be a faster and/or more convenient means of payment than current methods such as cash, cheque and credit cards. This may include using a mobile phone to make micro payments for items such as newspapers or coffee often purchased 'on the go', making 'person to person' money transfers, or buying tickets via SMS, thereby saving consumers time waiting in queues or online.

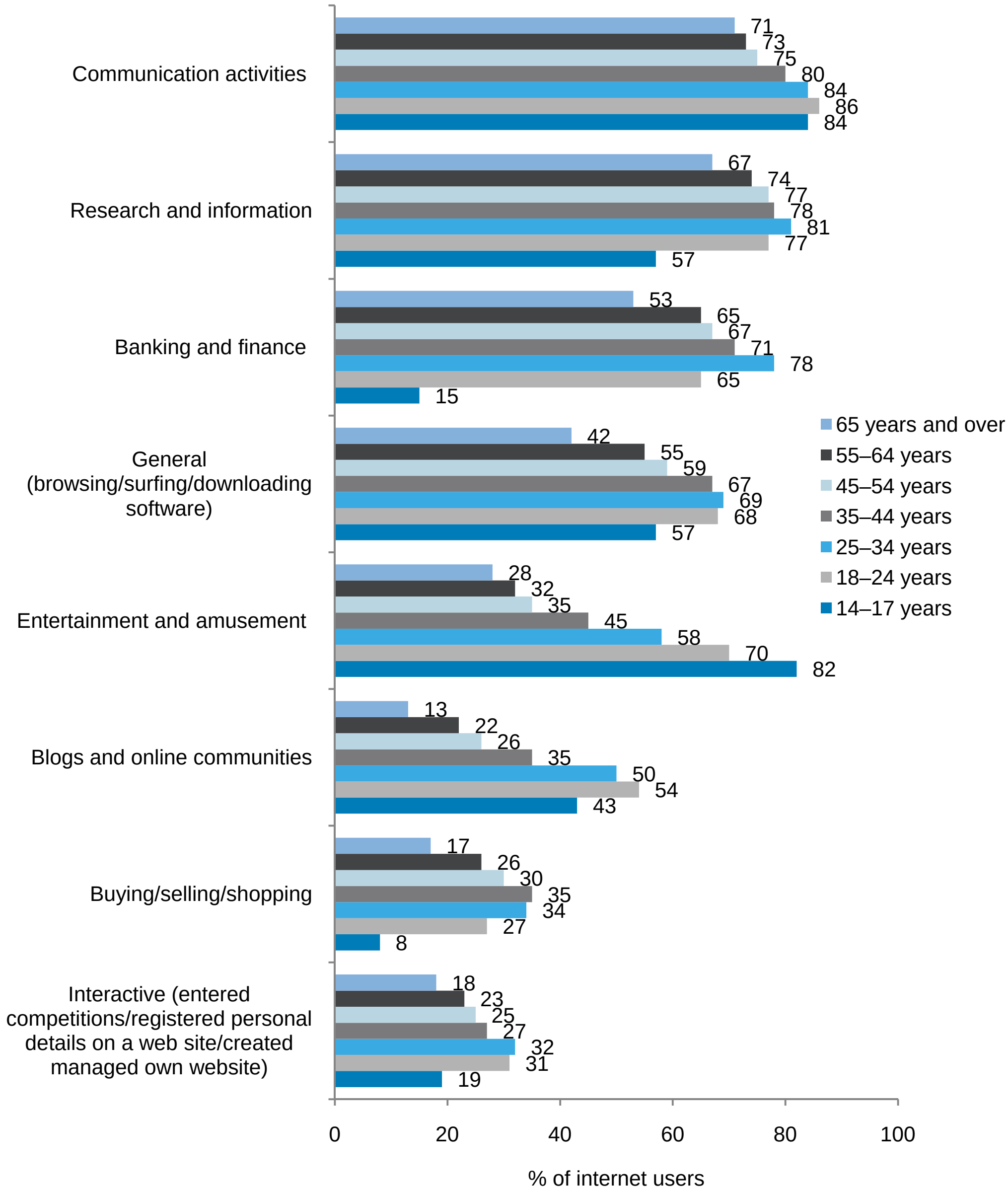
While Australian consumers supported the use of mobile phones for payment services, they reported concern about the method used to process transactions. Mobile payments processed by banking institutions were perceived as more trustworthy than those managed by a telecommunications service provider or a mobile payment services company. Banking institutions were seen to have greater levels of guarantees in place to protect against fraud and misuse of personal data.

Activities undertaken online by age

The degree to which online Australians engaged in a particular activity varied with age (Figure 11). For example, for Australians using the internet via a computer, entertainment and amusement based activities declined steadily with age from a high of 82 per cent for 14–17-year-olds, to a low of 28 per cent for persons 65 years and over. Activities associated with banking and finance remained primarily an adult activity, peaking at 78 per cent for persons aged 25–34 years.

[8] The ACMA, *Community research into attitudes towards the use of mobile payment services*, July 2010.

Figure 11 Activities undertaken online by age during June 2010



Source: Roy Morgan Single Source, June 2010.

The broad categories of online activities undertaken via computer identified in Figure 10 and Figure 11 are explored further in greater depth in Figures 12 to 19, revealing a diverse range of behaviours.

Figure 12 Online communication activities during June 2010

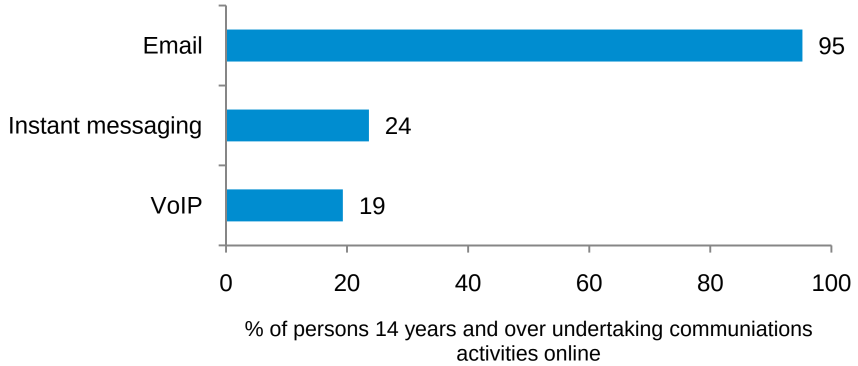


Figure 13 Online research and information activities during June 2010

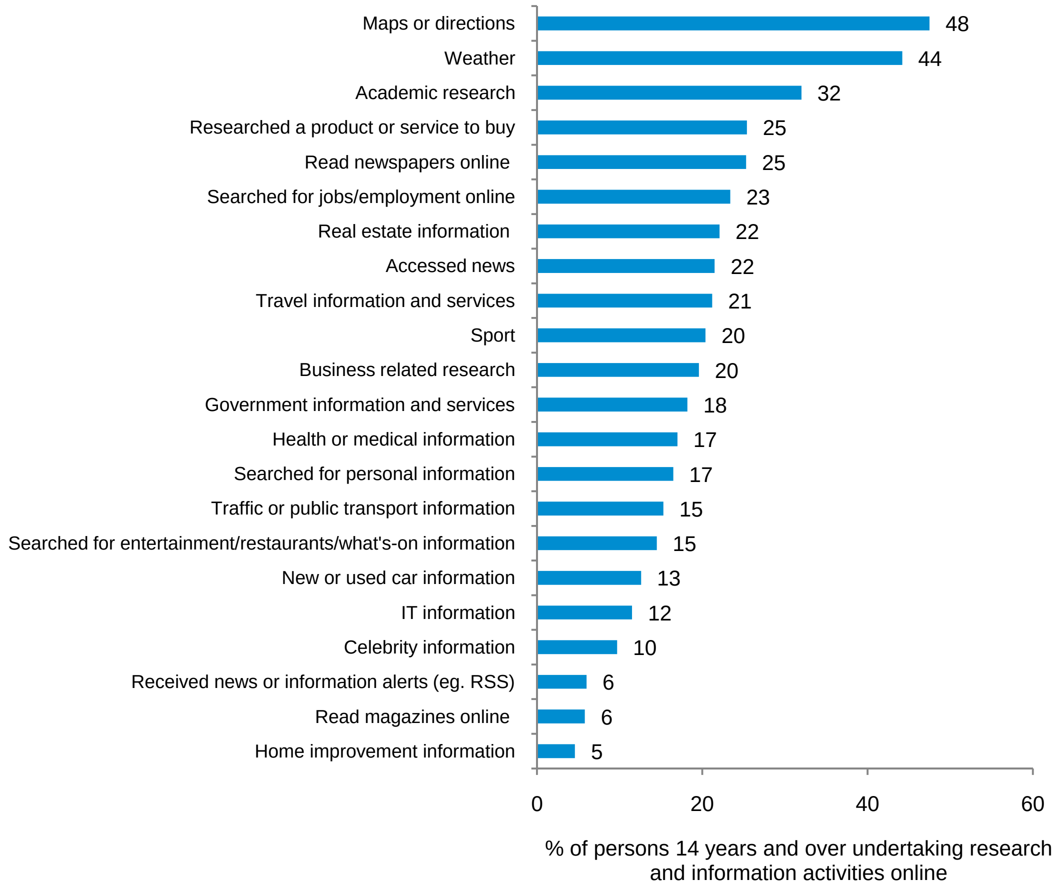


Figure 14 Online banking and finance activities during June 2010

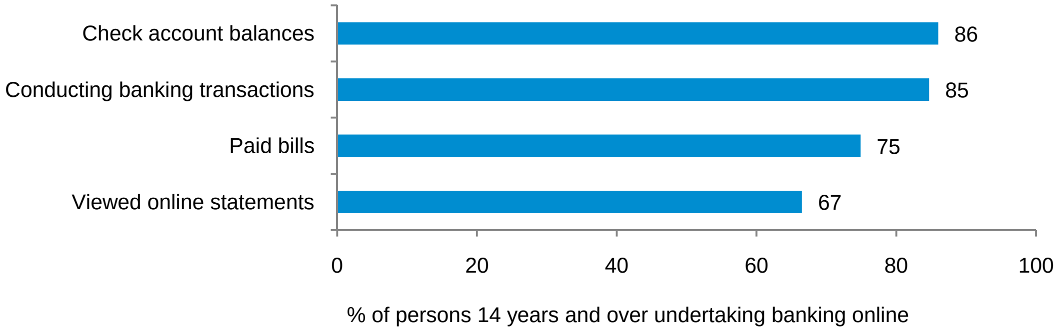


Figure 15 General online activities during June 2010

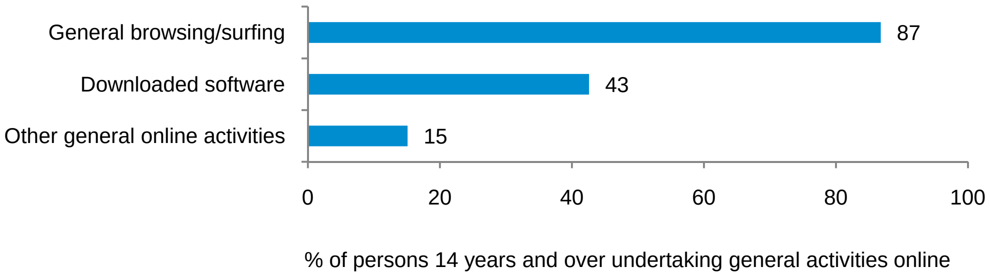


Figure 16 Online entertainment and amusement activities during June 2010

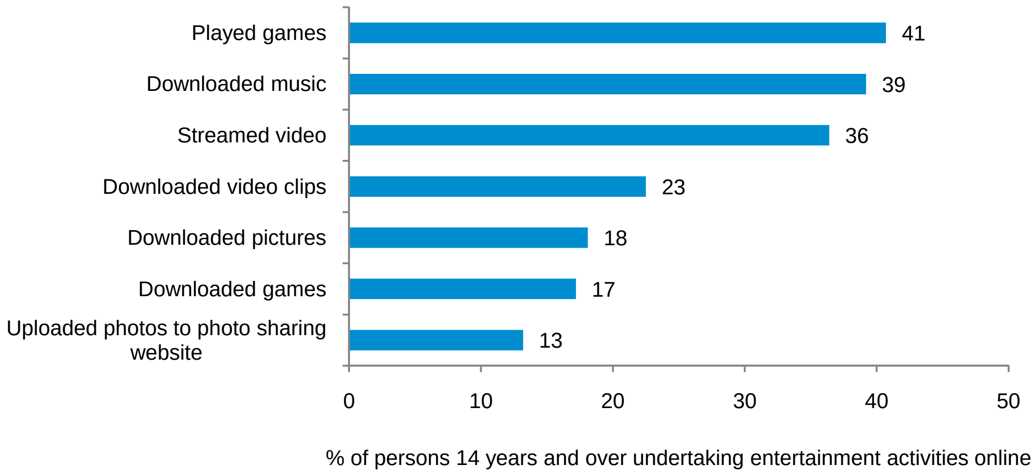


Figure 17 Blogs and online community activities during June 2010

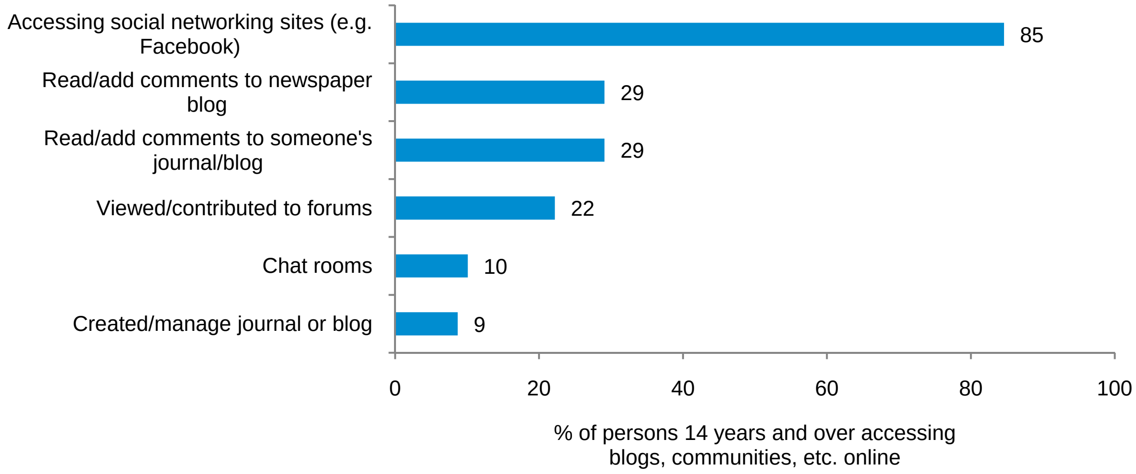


Figure 18 Online buying/selling activities during June 2010

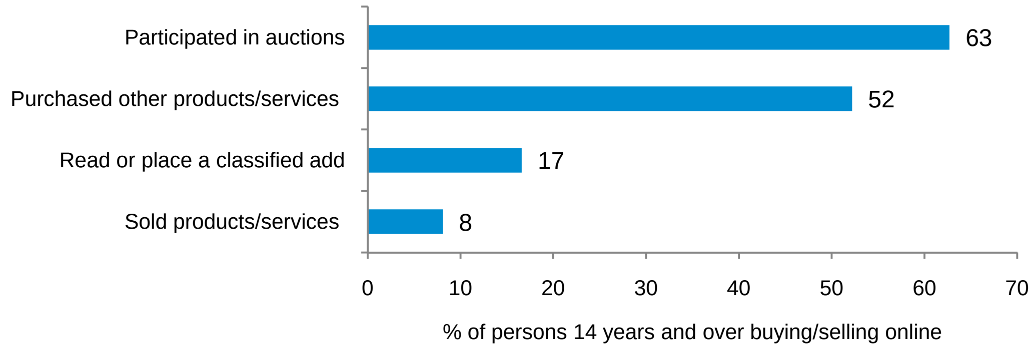
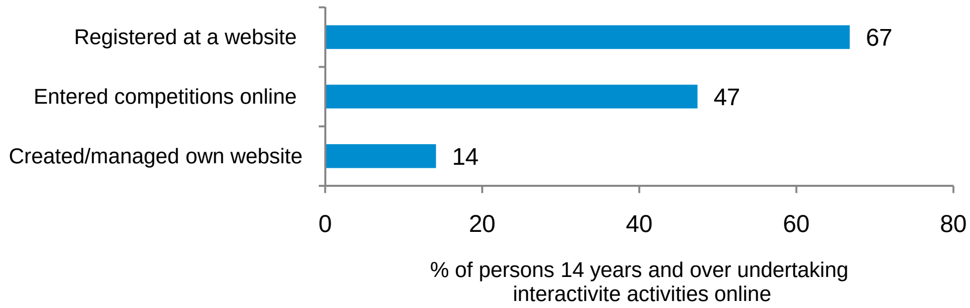


Figure 19 Online interactive activities during June 2010

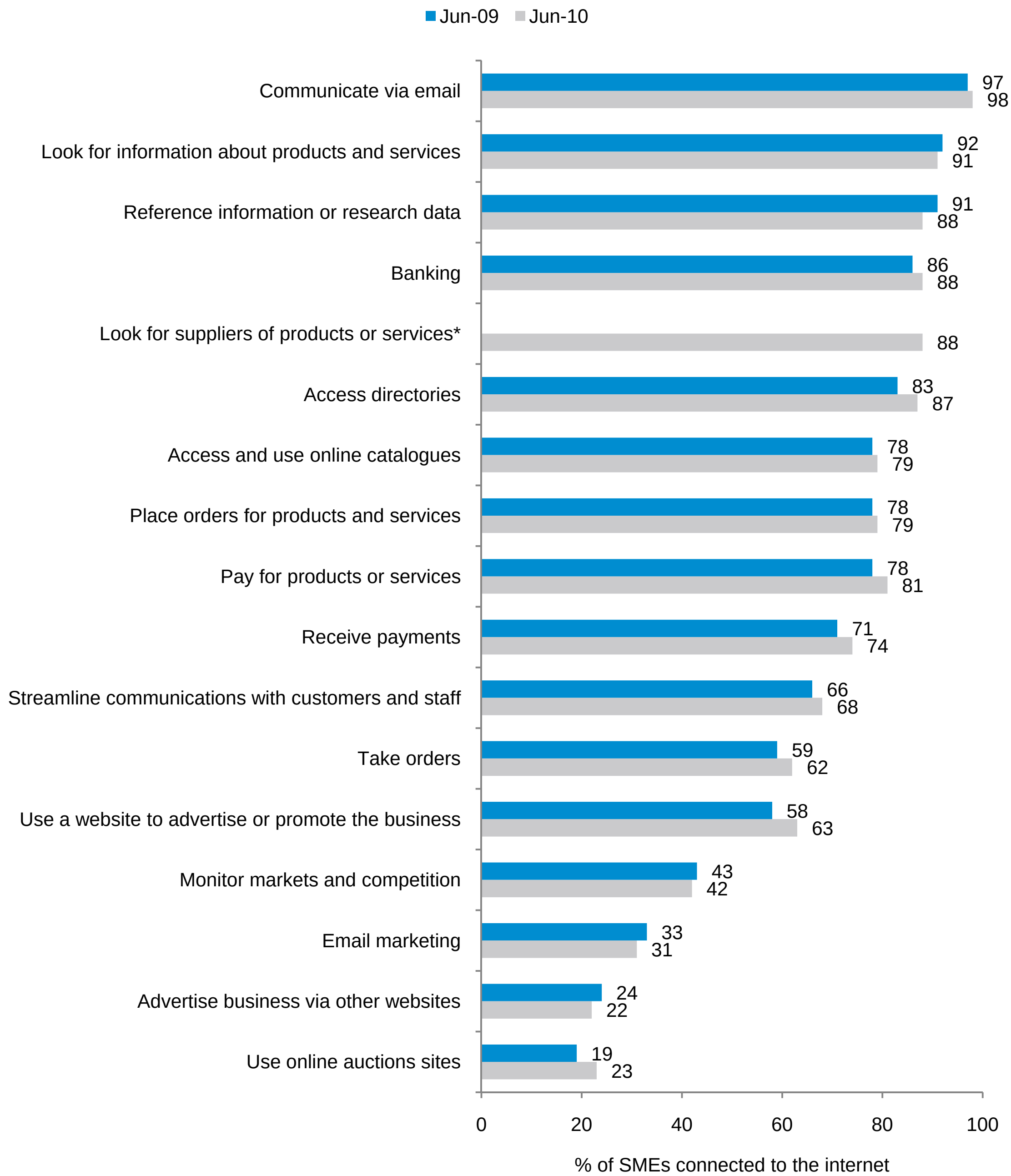


Source: Roy Morgan Single Source, June 2010.

Online activities undertaken by SMEs

As with the general Australian population, activities relating to communications, research/information and transactions featured prominently in the range of activities undertaken by Australian SMEs online—unchanged from June 2009. At June 2010, the top five activities undertaken online by SMEs included; email communications (98 per cent), looking for information about products and services (91 per cent), looking for reference information or research data, banking or looking for suppliers of goods or services, 88 per cent respectively. In addition to online banking, SMEs also engaged in other online transaction based activities including receiving payments (74 per cent), and paying for products and services (81 per cent). Figure 20 provides a more expansive overview of SME online activities.

Figure 20 Online activities undertaken by Australian SMEs, June 2010



**Data not collected for June 2009.*

Source: Sensis, Sensis e-Business Report: The Online Experience of small and medium enterprises, September 2010.

Confidence

Growing confidence in the digital economy is demonstrated by a range of data and evidence relating to the broadening of online participation in Australia, increasing levels of social interaction occurring online and the growth in the value of online activity.

Website traffic

The next series of data provides an overview of web traffic originating in Australia. It examines the type of sites accessed and the intensity of interaction. A selection of international data is also presented to demonstrate the 'border-less' nature of the digital economy and its increasingly global characteristics.

Top websites visited

Websites are generally the first port of call for internet users looking for information or services. They are also a critical dissemination channel used by private and publication organisations in their interaction with online customers and citizens.

During June 2010, approximately 11.2 million Australians went online from home via a broadband service, viewing an estimated 18.2 billion web pages hosted within Australia and overseas.[9]

Table 4 provides a snapshot of the top 25 websites visited by home internet users in Australia. Consistent with previous years, the critical role companies such as Google play in aggregating online information resources is evident in the popularity of sites such as Google search, Google image search, and Google maps. During June 2010 alone, 86 per cent of active internet users in Australians used Google search, while 40 per cent used Google maps.

Dominant online market players such as Google are seeking to protect their position and leverage commercial advantage by diversifying their service offerings to patrons. Google's recent announcement that it will integrate voice services into its Gmail service, enabling VoIP calls to numbers in the USA or Canada, is an example of this.[10]

Pure-play social networking and user generated content sites such as Facebook, YouTube and Wikipedia also featured prominently in the list of websites visited by Australians, accounting for 61 per cent, 43 per cent and 38 per cent of home internet users respectively. The auction site eBay was accessed by an estimated 36 per cent of internet users in Australia from home during June 2010.

Research shows that home internet users in the USA and the UK visit similar websites to Australians, which is a reflection of the increasingly international dimension of the digital economy. Table 4 provides a comparative snapshot of the top 25 websites accessed by internet users in Australia, the UK and the USA during June 2010. Google Search and Facebook, were the popular websites, visited by the highest proportion of internet users in Australia, the UK and the USA.

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[9] Nielsen Online, June 2010.

[10] www.intomobile.com/2010/08/26/google-says-over-1-million-google-voice-calls-made-from-gmail-in-24-hours/, 26 August 2010.

Table 4 Top 25 websites accessed in Australia, UK and USA during June 2010

Most visited websites	Australia (%)	UK (%)	USA (%)
Google search	86	84	72
Facebook	61	66	47
YouTube homepage	43	—	—
Google maps	40	46	37
Wikipedia	38	39	—
eBay	36	46	—
Google image search	32	33	26
ninemsn homepage	30	—	—
Windows Live hotmail	30	38	19
Blogger	21	21	—
Google Account	19	19	24
Bing Web	18	—	26
Apple product info and support	17	—	—
Yahoo!7 Answers	17	—	—
Mozilla	16	—	—
Commonwealth NetBank	16	—	—
ninemsn Nine News	16	—	—
Yahoo!7 homepage	15	—	—
Bureau of Meteorology	14	—	—
smh.com.au	14	—	—
Ask.com	14	—	18
Amazon	14	40	—
NEWS.com.au	13	—	—
Yahoo!7 search	12	—	—
Adobe	12	—	—
Apple	—	—	17
Associated Newspapers	—	22	—
BBC homepage	—	19	—
BBC News	—	28	—
BBC Sport	—	23	—
Fox Interactive Media	—	—	16
Google Gmail	—		17
iTunes	—	20	24
MSNBC Digital Network	—	—	16
MySpace.com	—	—	24
PayPal	—	20	—
Sky Portal	—	22	—
Tesco	—	20	—
weather.com	—	—	20
Windows Live Messenger	—	38	19
Windows Media Player	—	33	37
Yahoo! Answers	—	—	19
Yahoo! homepage	—	20	42
Yahoo! Mail	—	23	38
Yahoo! News	—	—	20
Yahoo! search	—		33
YouTube homepage	—	25	30
Ask Search Network	—	27	—
MapQuest	—	—	17
MSN homepage	—	26	25

Note: Relates to users of a home broadband service.

Source: Nielsen Online, June 2010.

Intensity of website traffic

Data sourced from Nielsen Online (Table 5) demonstrates the critical role websites play in facilitating online participation as information and service provision channels. During the 2009–10 reporting period, home internet users in Australia averaged 36–40 separate internet sessions per month, spent on average 32 hours and 55 minutes to 42 hours and 44 minutes online and viewed on average 1,388 to 1,608 separate web pages.

Table 5 Time spent online accessing websites by Australian internet users, 2009–10

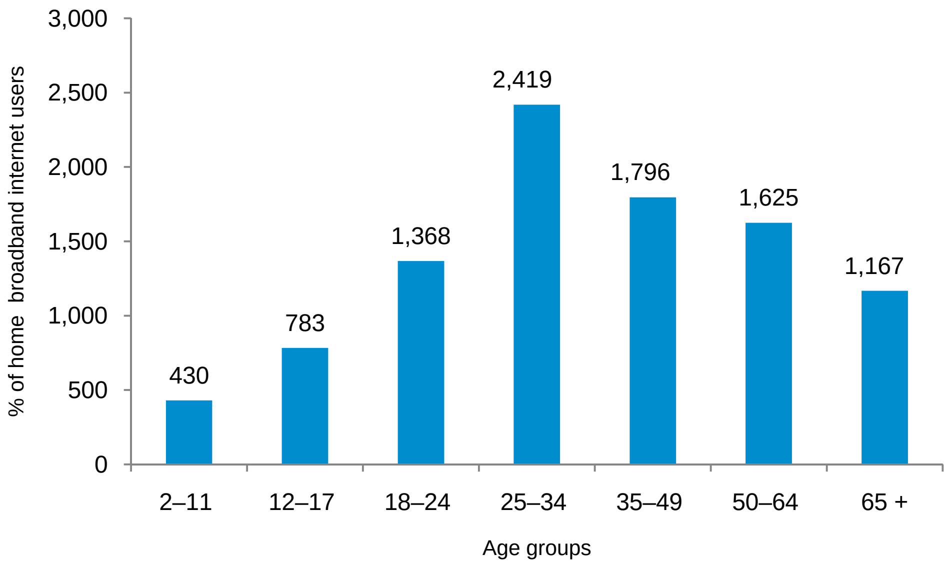
Internet access	Minimum	Maximum
Number of internet sessions per month	36	40
Average time spent online per month (hrs:mins)	32:55	42:44
Average number of web pages viewed per month	1,388	1,608

Note: Relates to home broadband internet users aged 2 years and over.
Source: Nielsen Online, June 2010.

The total monthly number of web pages viewed by Australians from home was estimated to be in the vicinity of 16.8 billion at the start of the period during July 2009 and 18.2 billion at the end of the reporting period during June 2010.[11]

Figure 21 provides a further disaggregation of home website traffic data by age. According to Nielsen Online data, the average number of web pages viewed from home during June 2010 ranged from a high of 2,419 page views for 25–34 year olds to a low of 430 page views for children aged 2–11. The lower level of web pages viewed by children is likely to be a result of a number of factors including parental restrictions, lower levels of interest and relevant content.

Figure 21 Average number of web pages viewed by age during June 2010



Note: Internet users might visit multiple web pages during a single session.
Source: Nielsen Online, June 2010.

[11] Nielsen Online, June 2010.

Participative web: Social networking and user generated content

Online communication, social networking and UGC activities have become increasingly ingrained in the everyday lives of Australians.

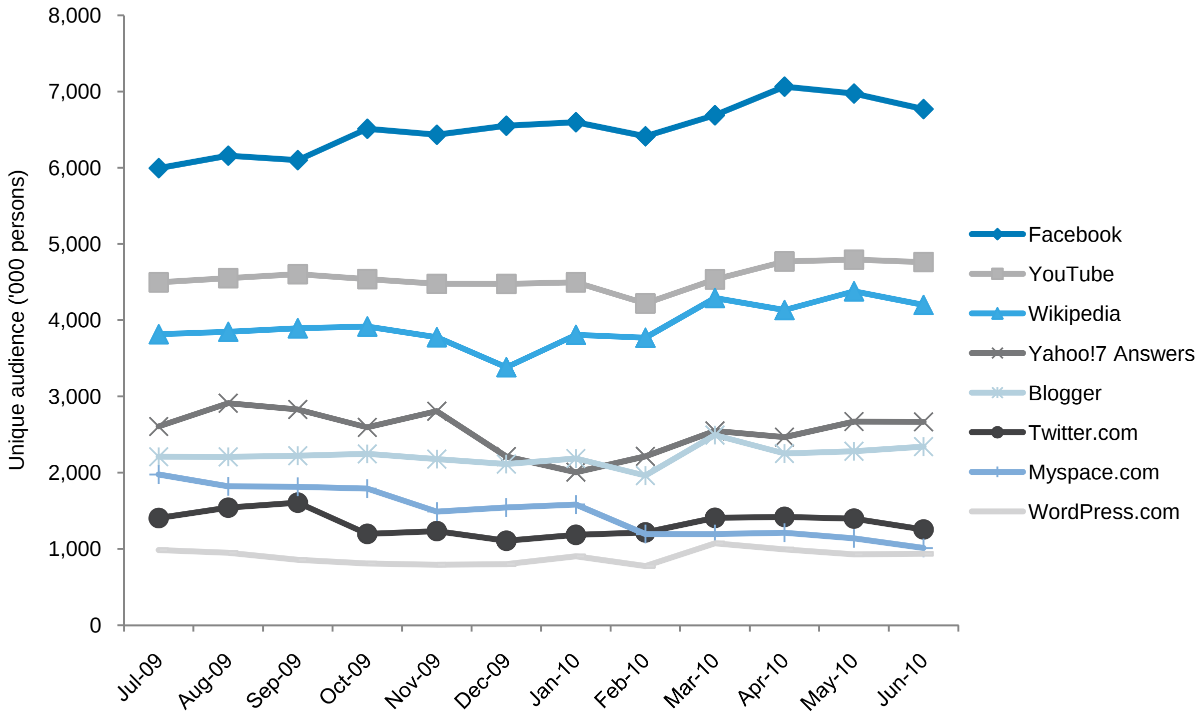
The popularity of sites such as Facebook continues to be one of the factors driving Australians' online participation levels with growth evident in terms of site patronage and intensity of activity. Nielsen Online data shows that approximately 8.7 million Australians aged two years and over accessed at least one social networking/UGC site identified in Figure 22 from home during June 2010, compared to 8.3 million during July 2009.

In terms of the individual sites identified, Facebook continues to dominate the social networking/UGC market in Australia and also overseas, in markets such as the UK and the US. Collectively, 121.3 million persons accessed Facebook in the US, UK and Australia during June 2010 (6.8 million in Australia).

The video sharing website, YouTube, and the reference site, Wikipedia, also consistently attracted a high level of web traffic in Australia during 2009–10, attracting 55 per cent and 48 per cent respectively of the total number of persons visiting one or more of the social networking/UGC sites listed in Figure 22 during the month of June 2010 alone.

The level of patronage in Australia of other sites and services identified ranged from 936,000 persons for WordPress.com to 2.7 million persons for Yahoo! 7Answers during June 2010.

Figure 22 Traffic to selected social networking/UGC sites, Australia



Note: Relates to users of a home broadband internet service.

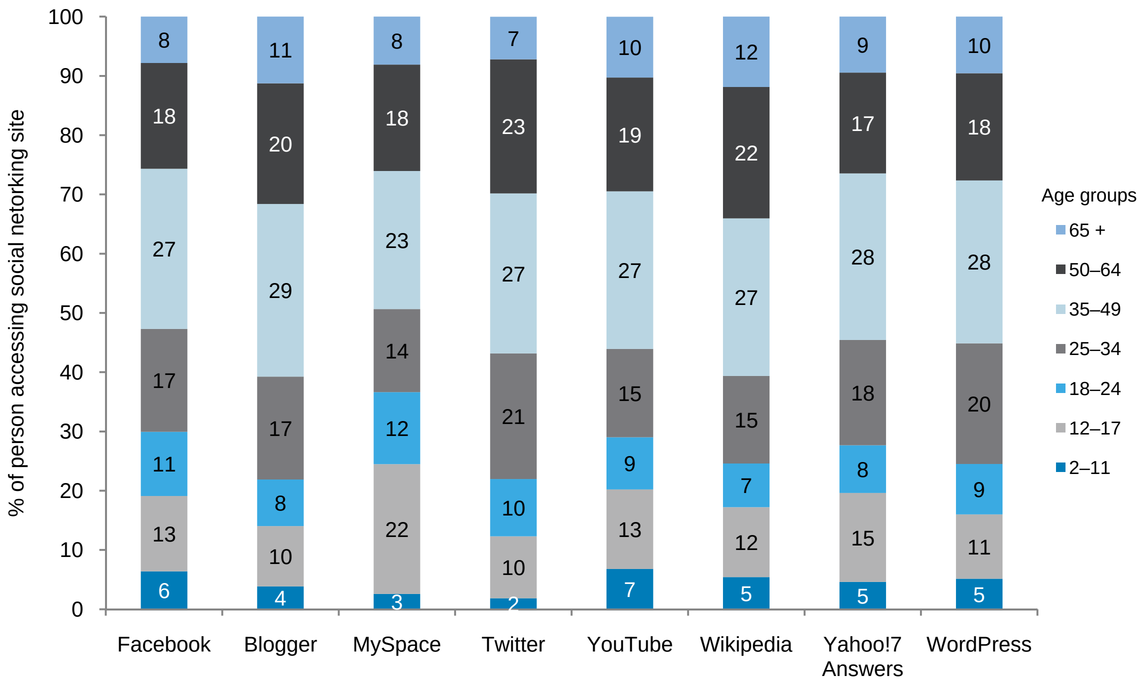
Source: Nielsen Online, June 2010.

User profile of social networking/UGC sites

Social networking/UGC sites have widespread appeal among the broader online population in Australia. Patrons of these sites reflect the wide age profile of Australians in general, an indication in itself that online social networking has shifted from a peripheral to a mainstream activity. Figure 23 presents an age profile of internet users in Australia who accessed mainstream social networking/UGC sites during June 2010.

For all the sites identified, persons aged 35–49 accounted for the single largest group of patrons, ranging from 23 per cent for MySpace to 29 per cent for Blogger. This was followed by 50–64-year-olds, 25–34-year-olds, 18–24–year-olds, 12–17-year-olds and, lastly, children under the age of 12.

Figure 23 Age profile of selected social networking sites/UGC users, Australia, June 2010



Note: Relates to users of a home broadband internet service.

Source: Nielsen Online, June 2010.

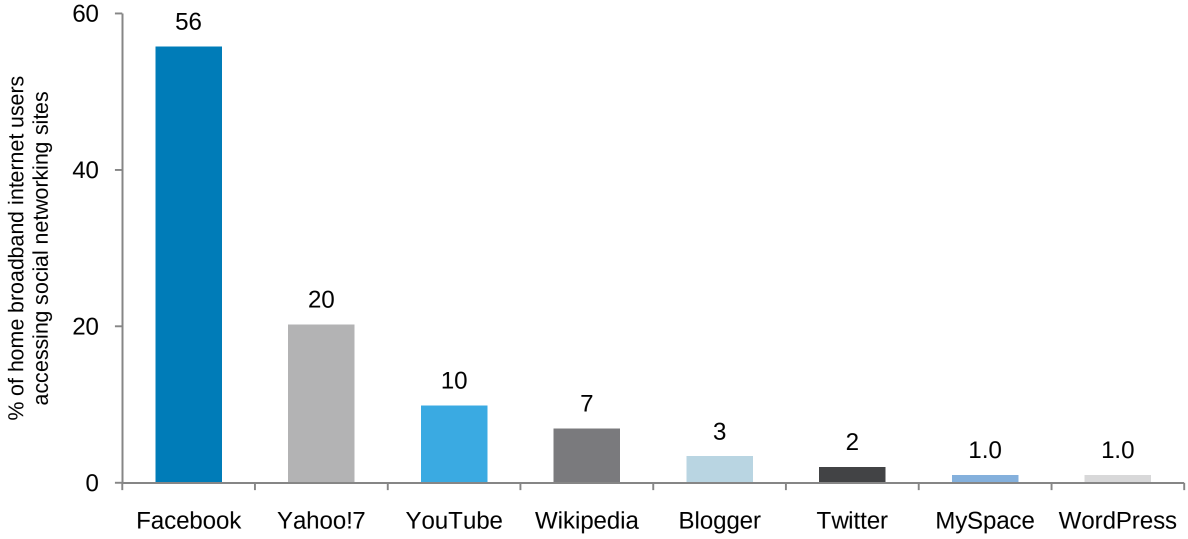
Intensity of participation on social networking/UGC sites

Social networking and UGC sites account for a large proportion of the time spent online by internet users in Australia. According to Nielsen Online, during June 2010, home internet users in Australia spent 41.5 million hours accessing one or more of the sites identified above, viewing 4.5 billion web pages during 237 million separate online sessions.

However, as shown by Figures 24 to 27, on the basis of key measures relating to the total number of sessions, time online and the number of pages viewed, Facebook accounted for the majority of social networking /UGC activity in Australia.

Facebook accounted for 56 per cent of the total number of sessions on social networking/UCG sites in Australia, followed by Yahoo!7 (20 per cent), YouTube (10 per cent), Wikipedia (seven per cent) and Blogger (three per cent) (Figure 24).

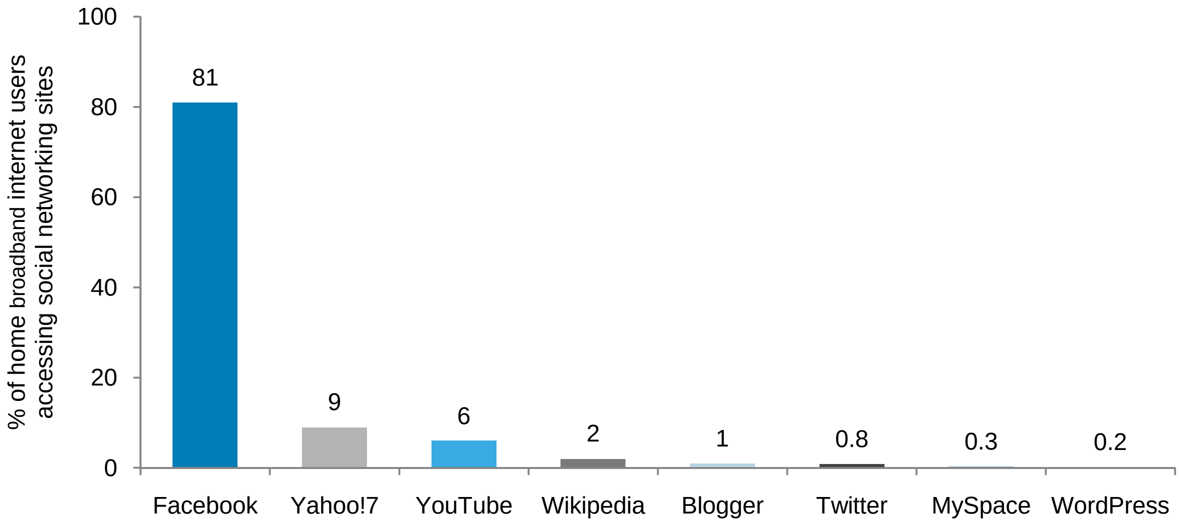
Figure 24 Share of total sessions on social networking/UGC sites, June 2010



Note: Relates to users of a home broadband internet service.
Source: Nielsen Online, June 2010.

Facebook also accounted for 81 per cent of the total time spent on social networking/UGC sites identified during June 2010, compared with nine per cent for Yahoo!7 and six per cent for YouTube (Figure 25).

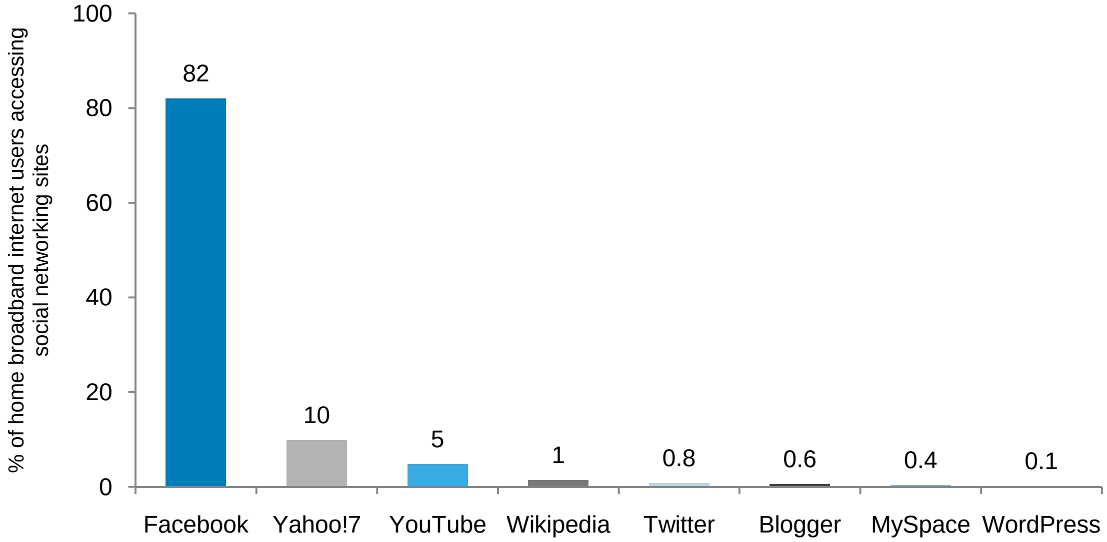
Figure 25 Share of total minutes on social networking/UGC sites, June 2010



Note: Relates to users of a home broadband internet service.
Source: Nielsen Online, June 2010.

Eighty-two per cent of the total number of social network/UGC web pages viewed online during June 2010 related to Facebook (Figure 26), 10 per cent to Yahoo!7 and five per cent to YouTube.

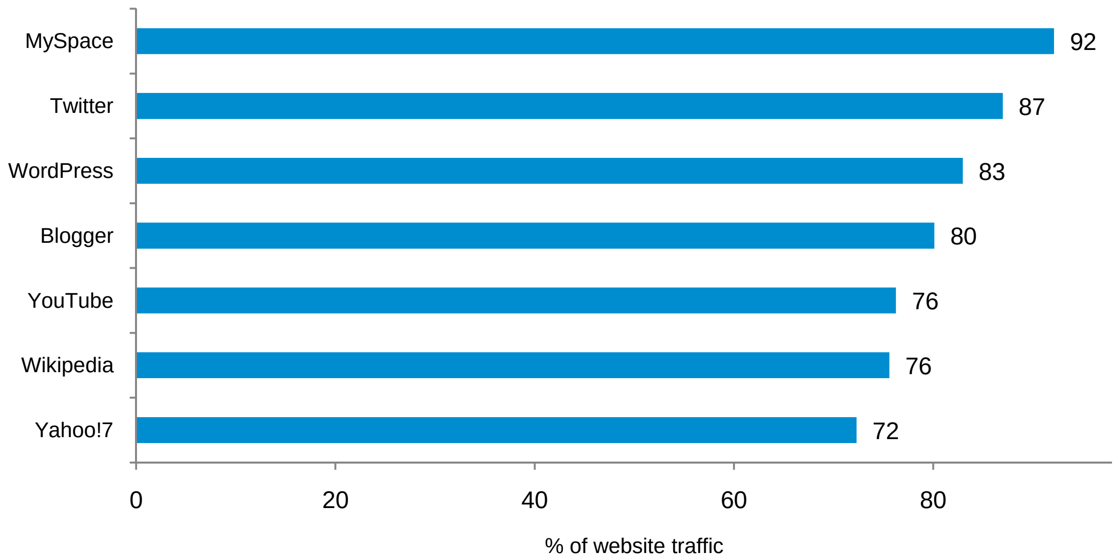
Figure 26 Share of total number of pages viewed, June 2010



Note: Relates to users of a home broadband internet service.
Source: Nielsen Online.

The prominence of Facebook in the social networking/UGC market in Australia is further demonstrated by Figure 27, which presents data on the level of common web traffic (internet users) between Facebook and the other social networking/UGC sites listed. During 2010, of the sites identified, the level of overlap with Facebook ranged from 72 per cent for Yahoo!7 to 92 per cent for MySpace.

Figure 27 Proportion of site traffic overlapping with Facebook, June 2010

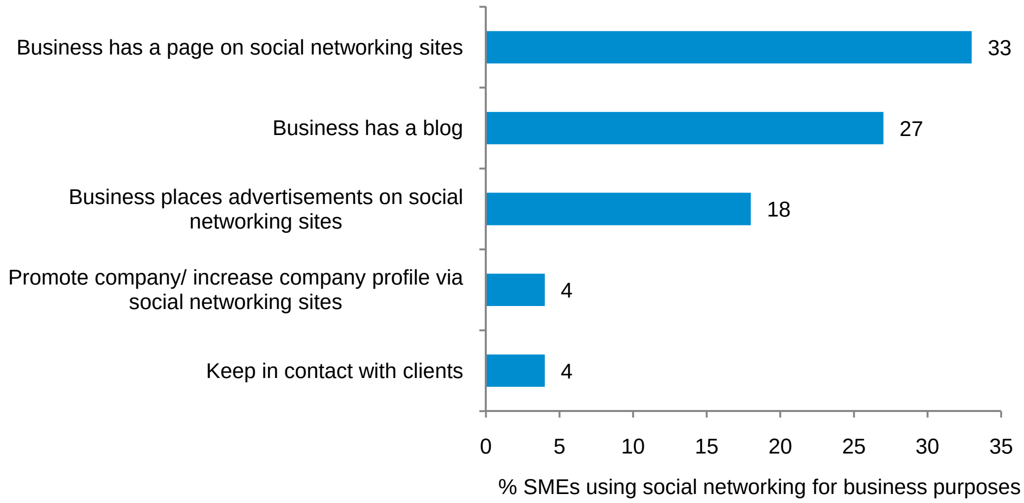


Note: Relates to users of a home broadband internet service.
Source: Nielsen Online, June 2010.

Australian business engagement with online social networking

The continued growth in the number of Australians accessing social networking sites has attracted the attention of both businesses and government organisations recognising the potential for the transformation of customer and citizen service delivery. However, the number of businesses utilising social networking channels at present is still comparatively small. At June 2010, approximately 10 per cent of SMEs connected to the internet in Australia used online social networking channels for business purposes, a further 35 per cent allowed their employees to access social networking sites at work.[12] Typical social networking business activities included; having a page on social networking sites, having a business blog, placing business advertisements on social networking sites, keeping in touch with clients and generally promoting the company (Figure 28).

Figure 28 Social networking activities of Australian SMEs, June 2010



Source: Sensis, Sensis e-Business Report: The Online Experience of small and medium enterprises, September 2010.

Impacts of the digital economy

This section of the report presents a range of data relating to the changes that are occurring in Australia as a result of the emerging digital economy. While the data presented is in itself statistically representative, the issues examined are only examples of the many changes occurring in Australian society as a result of the digital economy.

The growth of online commerce

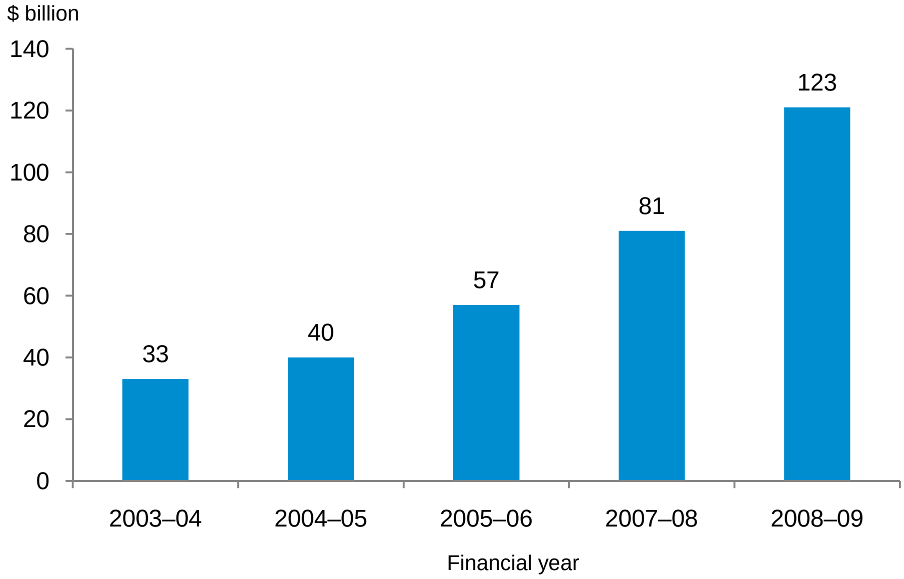
The internet can empower consumers by making it easier to find information on the cost and availability of products and services and to compare offerings across companies to identify potential cost savings. The internet can also empower businesses by enabling the development of new online markets often through price differentiation between offline and online purchasing channels.

The increasing significance of the internet as a channel for business in Australia is demonstrated by the growing value of goods and services sold or ordered online. The ABS estimates that during 2008–09, 27 per cent of businesses in operation in Australia generated income from the sale of goods and services online, with total

[12] Sensis, *Sensis e-Business Report: The Online Experience of small and medium enterprises,* September 2010.

online sales estimated to be in the vicinity of $123 billion, a 52 per cent increase since June 2008 (Figure 29). Data relating to June 2010 is not available as yet.

Figure 29 Value of internet commerce, Australia



Note: ABS defines internet e-commerce as the purchase/order of goods and services online regardless of whether or not the purchases were paid for online.

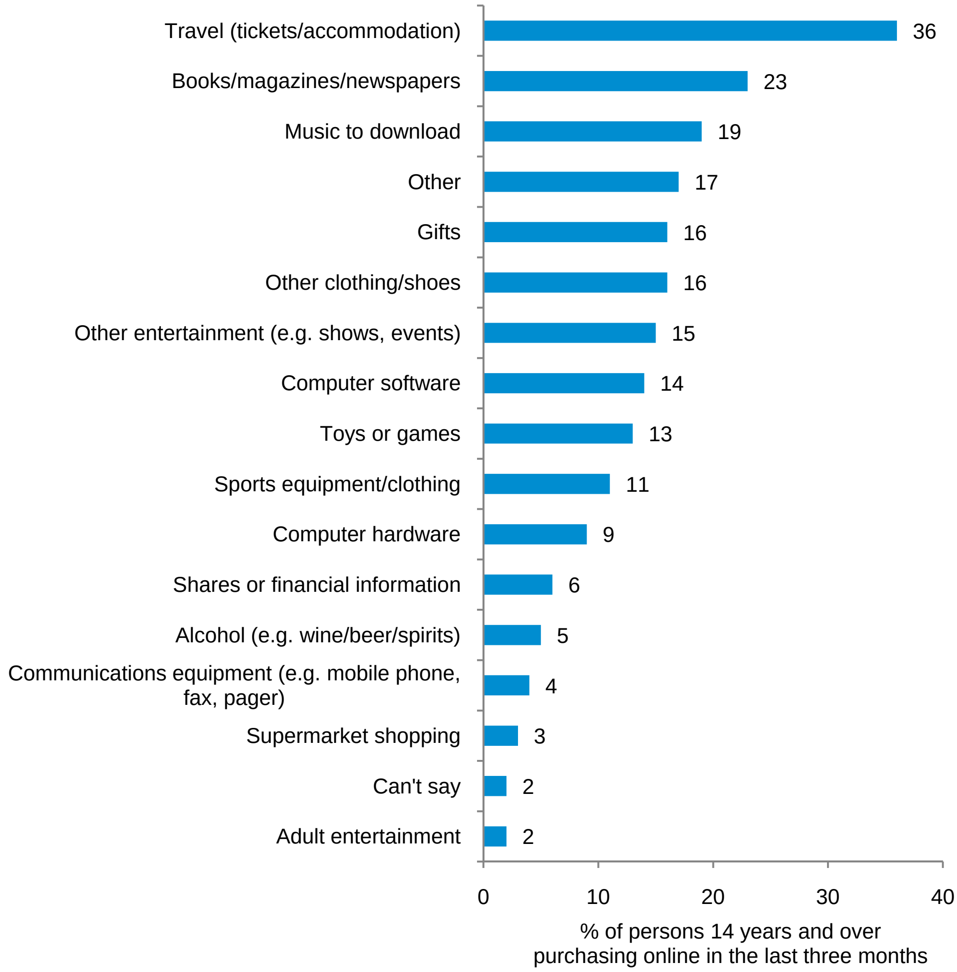
Source: ABS, 8166.0—Summary of IT Use and Innovation in Australian Business, 2008–09.

Type of goods and services purchased online

The evolution of the internet as a business channel is further demonstrated by the scope of goods and services now available for purchase online.

As shown in Figure 30, Australians went online during the last quarter of 2009–10 to purchase a wide range of services, with travel, print and music related items being the most frequently identified purchases. Thirty-six per cent of internet users in Australia aged 14 years and over made an online purchase relating to travel items including tickets and accommodation. A further 23 per cent and 19 per cent respectively purchased print related material (books, magazines and newspapers) and music for downloading.

Figure 30 Types of goods and service purchased online, Australia, 2009–10

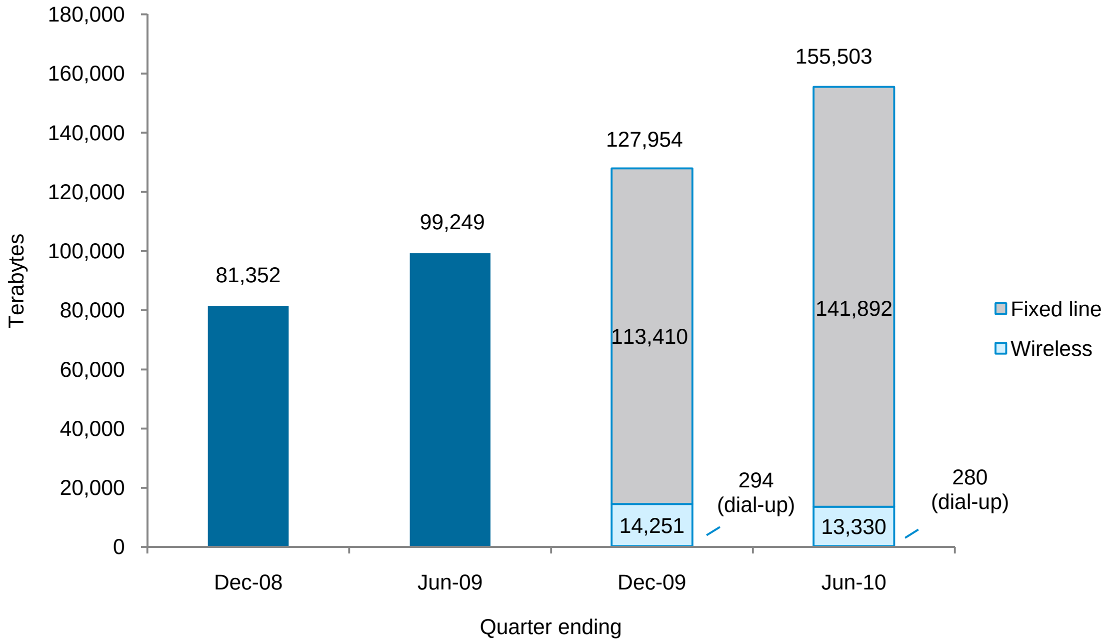


Note: Relates to users of a home broadband internet service.
Source: Nielsen Online, June 2010.

Volume of data downloaded by Australians online

ABS statistics provide evidence of the growing quantity of information available online and the increasing intensity of online participation (Figure 31). During the June quarter of 2010, internet users in Australia were estimated to have downloaded 155,503 terabytes of data, compared to 127,954 terabytes downloaded during the December quarter of 2009 and 99,249 terabytes during the June quarter of 2009. However, while mobile wireless broadband has driven growth in the broadband subscriber market in Australia, fixed-line networks carry the bulk of data downloaded from the internet, 91 per cent at June 2010.

Figure 31 Volume of data downloaded by Australian internet users



Note: ABS did not publish statistics on the volume of data downloaded by technology prior to December 2009. Previous reporting periods have been excluded due to ABS targeting ISPs with more than 10,000 subscribers.
Revisions: Dec 09 figures were revised by ABS in June 2010. ABS reports that 'download data presented should only be considered an indicative measure of internet activity during the reference period and therefore should be used with caution.'
Source: ABS, 8153.0–Internet Activity, Australia, June 2010.

Changed behaviours

The internet presents both a challenge and an opportunity for established communications and media companies. New opportunities for the development of products and services are emerging, including the potential for new online distribution channels and consumer-centric business models, such as catch-up viewing. Challenges are also emerging—established communications companies are seeking to sustain traditional revenue streams as consumers opt to access voice and content services across multiple platforms and from new market entrants.[13]

While the internet has facilitated many every day social and economic activities, it has also changed consumer attitudes to traditional communications and media services. As an example of this, Figure 32 presents data on consumer perceptions of how the internet has affected their use of telephony, broadcasting and print media services in Australia.

While the majority of respondents reported no change ('about the same') in their offline use of communications and media services (49–63 per cent), a significant minority reported that they access these services less often (17–22 per cent).

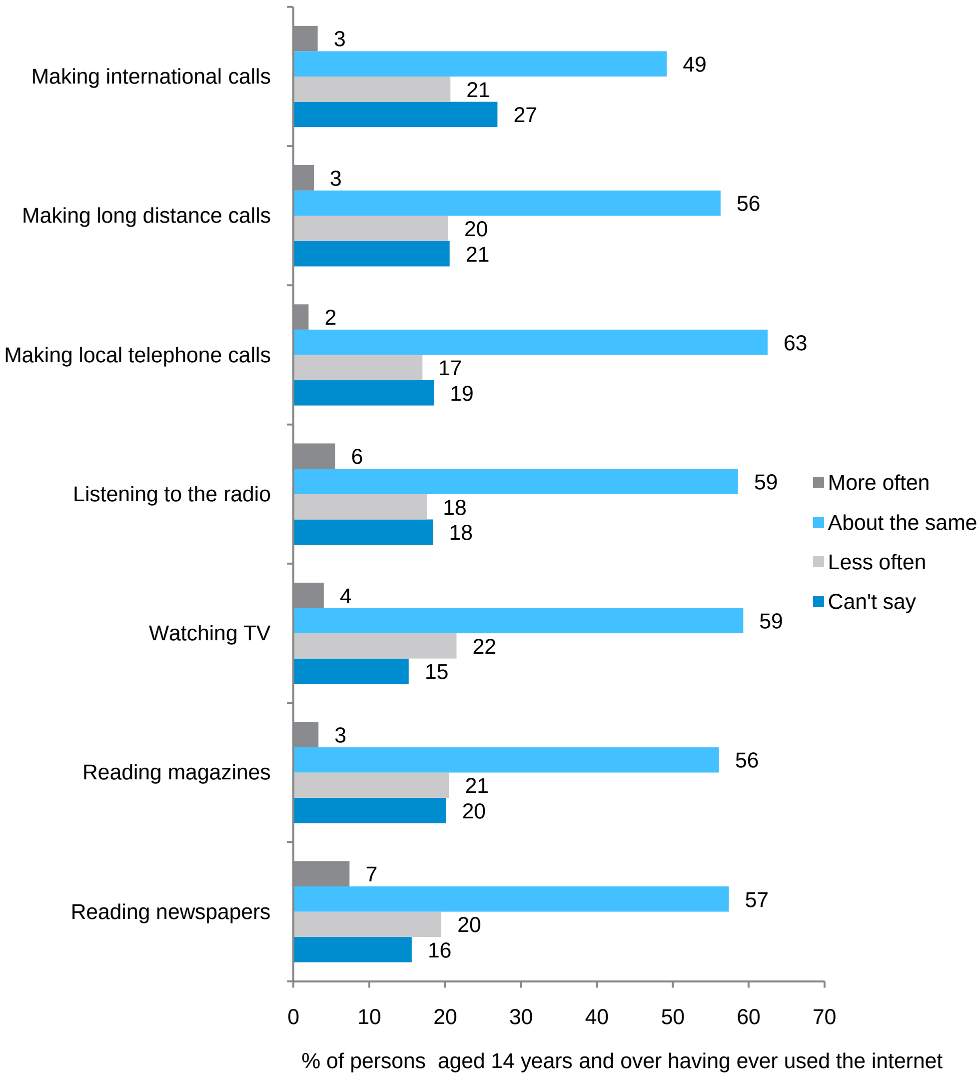
In terms of telephony services, at June 2010, 21 per cent of internet users aged 14 years and over reported making international calls less often, 20 per cent made long distance calls less often and 17 per cent made local calls less often.

In relation to broadcasting services, 18 per cent of internet users aged 14 years and over reported listening to the radio less often and 22 per cent watched television less often.

[13] The ACMA, *Communications report 2008–09*.

In terms of magazines and newspapers, 21 per cent and 20 per cent of internet users respectively reported reading magazines and newspapers less often.

Figure 32 Changing behaviours since using the internet, June 2010



Source: Roy Morgan Single Source, June 2010.

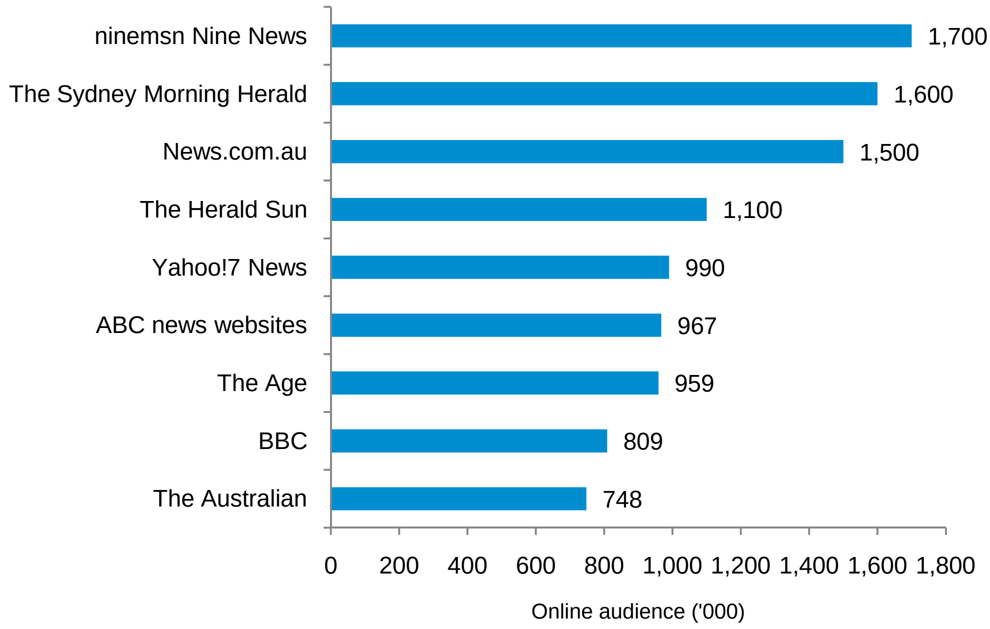
While internet users in Australia are apparently accessing traditional voice and media services less often, a growing number are utilising online communications and media channels. For example, Australians are increasingly using online instant messaging services and accessing VoIP services, while social networking channels are also providing alternatives to traditional offline voice communications. The increasing importance of online voice communications is evidenced by the fact that at June 2010 an estimated 2.9 million Australians aged 14 years and over used a VoIP service at home compared to 2.2 million at June 2009.[14]

Furthermore, increasing numbers of internet users are going online for video content and taking advantage of catch-up viewing services offered by existing broadcasters and, as Figure 33 shows, accessing online news sites. During June 2010, for example, approximately 6.1 million Australians were estimated to have gone online to access news and current affairs sites. Patronage of the main Australian news sites ranged from 748,000 persons in Australia accessing *The Australian* online to 1.7 million

[14] Roy Morgan Single Source, June 2010.

accessing ninemsn *Nine News*. In addition, a further 809,000 Australians went offshore and accessed the BBC online news site during June 2010.

Figure 33 Online news sites accessed in Australia during June 2010



Note: Relates to home broadband internet users two years and over.
Source: Nielsen Online, June 2010.

The challenges confronting Australia's communications and media sectors as a result of the emerging digital economy and their related response strategies will be examined further in the forth report in this series, *Changing business models in the Australian communication and media sectors: Challenges and response strategies.*

Trust and confidence in the online environment

While the internet is providing new economic and social opportunities, it is also presenting new risks and challenges in the form of electronic security breaches (online fraud and identity theft) and concerns for the personal security and safety of the more vulnerable sections of society, in particular children. The following section presents a summary of results from a survey:

1. of parents commissioned by the ACMA in July 2009.[15] This quantitative research was designed to better understand parents' concerns about their child's online safety (cybersafety) and the type of safety information parents need to address these concerns.
2. of SMEs undertaken by Sensis into SME use of the internet.

Cybersafety concerns and Cybersmart information sources used by parents

Seventy-one per cent of parents surveyed reported being concerned about cybersafety, with 32 per cent of this group indicating that they were 'very concerned'. Parents of children aged eight to11 years were more likely to report that they were 'very concerned'. This survey finding confirms some of the observations made during the qualitative phase of this research. Parents of eight to 11-year-olds reported that they had become increasingly concerned about cybersafety issues because their children were now at an age where being online was an integral part of their school education and their social life.

[15] The ACMA, *Cybersmart Parents: Connecting parents to cybersafety resources,* July 2010.

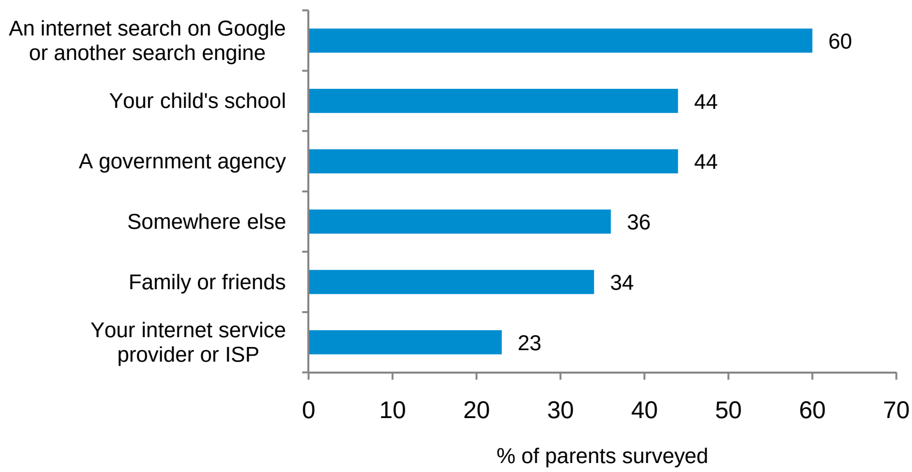
Seventeen per cent of parents had actively searched for cybersafety information. Parents with a higher level of education were more likely to personally attempt to locate cybersafety information (25 per cent of parents with a university level education in comparison to nine per cent of parents with a primary/secondary education).

Exposure to a cybersafety incident was a factor in influencing this information-seeking behaviour—31 per cent of parents who had experienced a cybersafety incident reported that they had actively searched for information. Among those parents with no experience of a cybersafety incident, only a small proportion (15 per cent) reported searching for cybersafety information.

The cybersafety information topics of most interest to surveyed parents were privacy risks (63 per cent) and safety risks (55 per cent). Other popular topics included information on cyberbullying (38 per cent) and where to go to complain about harmful content (23 per cent).

Figure 34 shows that parents used a variety of sources to access cybersafety information. Internet searches were the most popular resource for parents looking for online safety information (60 per cent). Other popular sources included their child's school (44 per cent) and government agencies (44 per cent).

Figure 34 Cybersafety information sources used by parents



Source: ACMA-commissioned research, August 2009.

These survey findings are consistent with the results observed in the ACMA's previous research in cybersafety and online social media usage.[16] When parents (of children aged eight to 17 years) were asked, unprompted, about where they might go to access online safety information, 40 per cent nominated direct web searches as a way of accessing cybersafety information (with more than half of this group identifying Google as the online channel for locating this information).

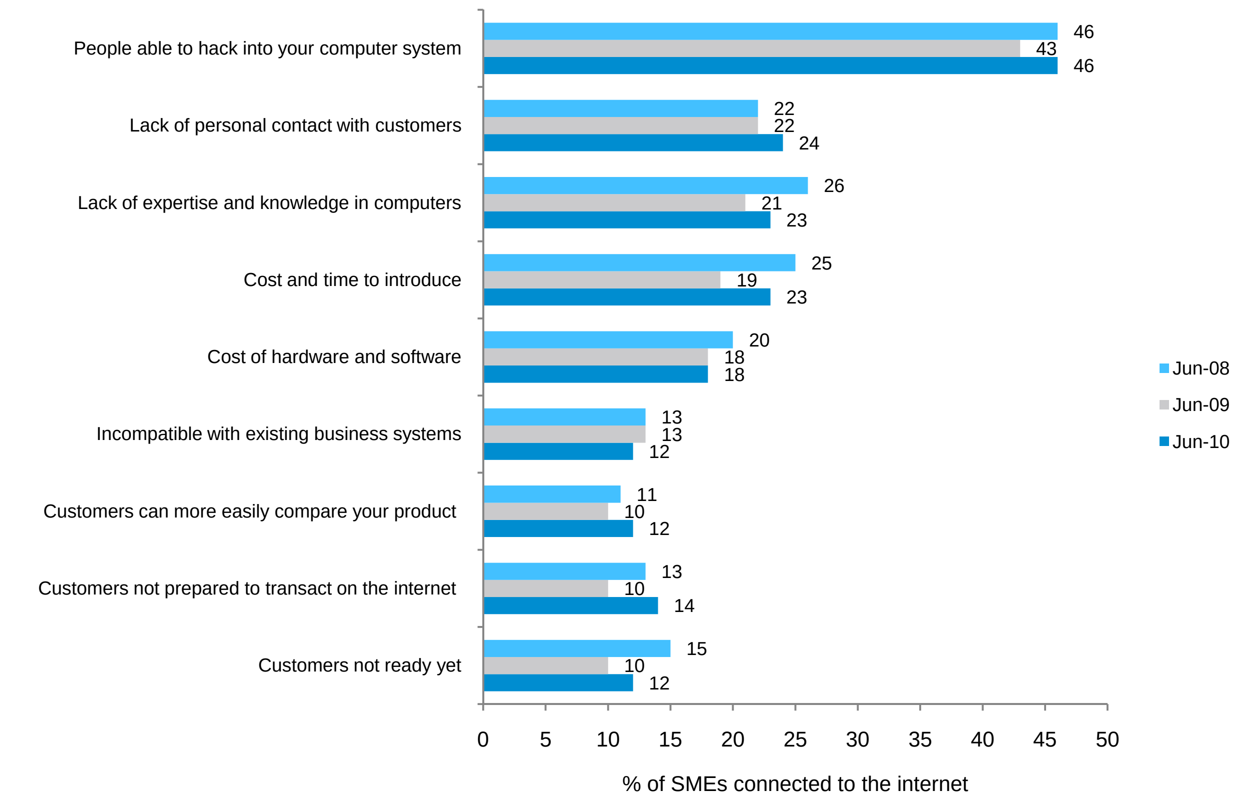
[16] The ACMA, *Click and connect: Young Australians' use of online social media. Volume 2: Quantitative research report*, July 2009, p.78.

SME concerns with e-commerce

Despite the value of internet e-commerce and the use of the internet for business purposes increasing in Australia, many businesses continue to have concerns about the introduction of e-commerce to their business operations. These concerns have typically centred on security, skill and cost related issues and can potentially be seen as barriers to businesses maximising the benefits from online participation (Figure 35).

At June 2010, 46 of SMEs connected to the internet were concerned about the potential for their computers systems to be hacked, consistently the top issue identified by Australian SMEs since June 2008. Other e-commerce concerns identified by a substantial number of SMEs included a lack of customer contact, 24 per cent, lack of expertise in computers, 23 per cent and cost of introducing e-commerce to the business and cost of technology, 23 per cent and 18 per cent respectively.

Figure 35 SME concerns with e-commerce



Source: Sensis, *Sensis e-Business Report: The Online Experience of Small and Medium Enterprises,* September 2010.

Methodology

A range of non-commissioned data sources are used in this report including:

> Roy Morgan Single Source (RMSS) for analysis of take-up and use of fixed-line, mobile and internet services. RMSS is a monthly survey of more than 25,000 randomly selected persons in Australia aged 14 years and over using self-completion forms. Latest survey data presented in this report refers to the month of June 2010.

> Nielsen Online for analysis of web traffic and web sites visited by Australians: A monthly survey of 7,000 randomly selected home broadband internet users. Latest data presented in this report refers to the month of June 2010.

> Sensis, *Sensis e-business report: The Online Experience of small and medium enterprises,* September 2010. This report is based on a survey of randomly selected small and medium size businesses (1–200 employees) conducted during months of April-June 2010. The survey is undertaken using computer assisted telephone interviews (CATI).

> the Australian Bureau of Statistics (ABS), biannual survey of Internet Service Providers (ISPs) in Australia. ABS collects a range of internet subscriber data from ISPs with more than 1,000 internet subscribers. Internet subscriber data includes; number of subscribers by internet access technology (DSL, wireless, etc) and volume of data downloaded. Latest ABS data available and presented in this report refers to the June 2010 quarter.

> previous ACMA research.

Table 6 provides an overview of the sample sizes for key estimates in this report.

Table 6 Sample sizes for key digital economy estimates

Estimate	Sample size
Roy Morgan Single Source	
% of the Australian population 14 years + having ever used the internet	15,515
% of the Australia population 14 years + with broadband at home	11,165
% of the Australian population 14 years + using the internet via their mobile phone	1,646
% of Australia internet users 14 years + undertaking research/information activities online	9,039
% of Australia internet users 14 years + undertaking banking/finance activities online	7,827
% of Australia internet users 14 years + buying/selling online	3,242
% of the Australian population 14 years + classified as a heavy internet users	4,078
Sensis e-business report	
% of Australian SMEs online	1,800
Nielsen Online	
Web traffic estimates	7,000

Data analysis
Results from the survey were analysed using descriptive analysis techniques, and by socioeconomic and demographic factors to identify any areas with significant patterns or differences. Only results with significant differences are reported in this research.

Sample size
The sample size limits some analysis by smaller subgroups, for example, data at state level or by both gender and age.

Rounding
Discrepancies may occur between the sums of the component items and totals due to the effects of rounding.

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