Fixed-mobile Convergence and Fixed-mobile Substitution in Australia

July 2008

Contents

1. Executive summary

The aim of this report is to give the Australian Communications and Media Authority (ACMA) an enhanced understanding of Fixed-Mobile Convergence (FMC) and Fixed-Mobile Substitution (FMS) trends in Australia, and their impacts on the communications sector. Other ACMA research has examined changing consumer use of fixed and mobile services and this report complements that earlier work by looking at changes in the supply of those services.

The Australian experience

FMC services are often, but not always, introduced by fixed-line and full-service operators, both as a defensive response to revenue pressures on the fixed-line and as a way of capitalising on a diverse service portfolio. Services encouraging FMS are generally offered by mobile operators hoping to increase traffic and subscriber numbers on their network. From the consumer perspective, FMC and FMS have very similar outcomes—the utilisation, to varying degrees, of fixed and mobile services as one service.

Usage FMS has a strong presence in the Australian communications sector. Between 2005 and 2007, the number of mobile minutes increased by 48 per cent while fixed minutes decreased by 10 per cent over the same period.[1] The mature mobile industry in Australia provides additional impetus for operators to introduce plans and packages that will increase consumer use of the mobile network and attract customers from other mobile operators. It is therefore expected that mobile plans will become increasingly generous and so further encourage the substitution of mobile traffic for fixed.

In contrast, FMC is in the early stages, with activities limited to service bundling. The lack of FMC development is expected to continue in the short term, although Telsyte research suggests that dual-mode FMC handsets will begin to be trialed in the second half of 2008.[2] One reason for the lack of development is that there has not been the same level of decline in fixed-line access in Australia compared to the international experience.

In Australia, fixed-line access has declined by six per cent since its peak in 2004. In the US, fixed lines peaked in 2000, and declined nine per cent between 2000 and 2005. In Canada, fixed lines peaked in 2001 and experienced a decline of eight per cent between 2001 and 2005.[3] In addition, while new services that will impact fixed-line voice services, such as naked DSL and Voice over Internet Protocol (VoIP), have been introduced in Australia, they are yet to be broadly accepted by residential customers.

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[1] ACMA data request (unpublished).
[2] Jo Best, 'Telstra, Optus "Will Delay FMC Launches"', ZDNet, 8 January 2008, accessed 14 May 2008, <http://www.zdnet.com.au/news/communications/soa/Telstra-Optus-will-delay-on-FMC-launches-/0,130061791,339284909,00.htm>.
[3] Data sourced from ACMA, Statistics Canada and FCC.

Access FMS trends are also not expected to reach the mainstream in the short term. Services aimed at persuading customers to cut the fixed-line cord are generally offered by mobile-only operators, such as Virgin and 3. Plans often include mobile and data bundles, which allow customers to source their voice and internet services from the same cellular network. Full-service operators hold around 80 per cent of mobile subscribers in Australia[4], which indicates that it will continue to be the mobile-only operators that will offer these services.

Influences on take-up

The development of FMC and FMS in Australia will be heavily influenced by consumer attitudes. For example, the mobile price premium or perceived premium[5] may make consumers hesitant to go 'mobile-only'. However, the mobile price premium is declining in Australia and this may result in greater numbers of 'mobile-only' customers.

Attitudes towards fixed and mobile services, and interest in and acceptance of new handsets and more complex services will influence the development of FMC and FMS. For example, techno non-adopters are less likely to see the value proposition in going 'mobile-only' or in having a dual-mode handset that allows fixed and mobile calls. Supply-side issues such as handset availability and the complexity of the service will also impact take-up.

Broadband industry characteristics can also influence the development of FMC and FMS. In Australia, 73 per cent of broadband connections are DSL[6] and often require the user to retain the fixed-line phone in order to access broadband—consequently, there are fewer customers willing to go 'mobile-only'. The increasing take-up of wireless broadband, and the increased data speeds available from cellular services and naked DSL services will lessen the influence of this factor.

Implications

FMC and FMS trends in Australia will have an important influence on the communications sector and could give rise to:

- Fluid boundaries—continued development of FMC and FMS will blur the boundaries between fixed and mobile services. This will make the distinctions between these services less relevant and the sector more difficult to regulate over time.

- New commercial models—the merging of fixed and mobile functionality is expected to result in new commercial models for operators, including developing partnerships between fixed and mobile providers and extending existing service portfolios. These changes will have important implications for industry dynamics in terms of participants and the emergence of new entrants.

- Changing roles—Access FMS results in mobile providers taking on roles traditionally provided by fixed-line operators. As this trend continues, there may be an increase in the number of operators able to provide full voice and data services to consumers.

- Traffic trends—potentially more traffic will move onto mobile networks, increasing the importance of mobile services at the expense of fixed-line services. At the same time, FMC services that connect back to a broadband rather than a Public Switched Telephone Network (PSTN)voice network will further erode voice traffic over the PSTN. This is a significant change from the emphasis on fixed-line services in today's communications sector.

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[4] ACCC, *Telecommunications Market Indicator Report 2005–06*, August 2007, p.13.
[5] The cost differential between fixed and mobile calls.
[6] ABS, *Cat. 8153.0 Internet Activity Survey*, December 2007.

- Changing industry structure—FMC and FMS trends will result in new operators and new services. This could affect operators' share of subscribers in the Australian communications sector.

- Increased complexity—as services increasingly converge, it is likely to be more difficult for consumers to remain informed. It will be important to monitor consumers' understanding of available services and their ability to evaluate different products and plans.[7] At the same time, consumers such as the techno non-adopters may have no interest in these new services, with the risk that they will be left behind as take-up increases.

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[7] Consumer decision-making about voice services is explored in the ACMA publication *Telecommunications Today: Consumer attitudes to take-up and use.*

2. Introduction

2.1. The big picture

The Australian communications environment continues to evolve. New technologies and services, blurring boundaries between industries and changing consumer and business behaviour are all contributing to ongoing changes in the communications sector.

New technologies and services

Improvements in wireless and cellular broadband bandwidth and coverage are creating alternatives to fixed network access. At the same time, increasing processor capability and storage capacities of mobile devices are allowing a greater range of applications and services to be accessed. In addition, dual-mode handsets that provide cellular and WiFi connectivity give the consumer increased connectivity options. Consumers are able to access services and applications, including the internet, through multiple devices and in multiple locations. For example, a consumer can use an Instant Messaging (IM) service on a PC as well as a mobile phone.

Blurring boundaries

Applications and services are available in different formats and for multiple devices. For example, film and television content is no longer exclusively delivered to the television; mobile and internet users can also access the same content through various devices.

Consequently, consumers can communicate with each other over a variety of devices using various applications and services. Devices include fixed and mobile telephones, desktop and portable computers, and handheld devices. Applications and services running on these devices include fixed and mobile VoIP, SMS, instant messaging, and a variety of internet applications and websites. The telephone is no longer the sole tool for communications.

Changing consumer behaviour

Consumers, with access to multiple devices and the ability to source content and access applications and services in a variety of contexts, are more actively participating in the communications environment—choosing the type, time and place of their service consumption.

With all these choices, consumers are creating their own ways of communicating—ones that do not necessarily fit within the traditional boundaries of fixed and mobile communications or the accompanying traditional regulatory framework. For some consumers, this may mean giving up the fixed PSTN line and using mobile exclusively for their voice services.

Changing business behaviour

New services and technologies, blurring boundaries and changing consumer behaviour allow the evolution of existing business models, and the introduction of new ones, to take advantage of emerging opportunities and defend against threats. For example, some mobile operators are bundling cellular broadband access with voice to take advantage of the increased bandwidth available over the network.

FMC, FMS and the big picture

Part of the overall changes in the communications environment is the presence of FMC and FMS. These services are challenging the traditional environment of the fixed telephone for home and mobile services for everywhere else.

2.2. FMC and FMS

FMC and FMS represent new challenges to the traditional pattern of separate fixed and mobile services designed to fulfill different consumer needs. In a regulatory environment that is focused on fixed voice, it is important to understand the changes in the communications sector that impact the provision and status of fixed services.

This report covers three concepts:

1. **FMC**—services that offer fixed and mobile as one service. This includes basic bundling of fixed and mobile services, and a dual-mode handset that can provide fixed and mobile calls.
2. **Access FMS**—consumers give up their fixed-line voice services and exclusively use their mobile phones.
3. **Usage FMS**—consumers retain their fixed-line voice service but use their mobile phone to make calls rather than their fixed-line phone. Consequently, consumers retain access to both services, but the rate of fixed-line usage declines.

The discussion of FMC and FMS in this report is not limited to voice. Content and other multimedia services can also be part of FMS trends or FMC activities. The analysis in this report refers to FMC and FMS in a general sense, taking into account both voice and other services.

2.3. Purpose

ACMA has undertaken a study of FMC and FMS as part of its ongoing research into emerging technologies and services. Previous research published within this body of work includes *IPTV and Internet Video in Australia* and *The Australian VoIP Market 2007*. This is consistent with ACMA's responsibility to publish information and report to the Minister for Broadband, Communications and the Digital Economy on developments in the telecommunications industry.

This report provides an overview of the development of FMC and FMS in Australia and the implications of the emergence of these new types of services. It focuses on:

- an overview of FMC and FMS;
- FMC and FMS trends in Australia;
- influences on FMC and FMS development in Australia; and
- implications of these developments for Australia.

2.4. Methodology

Information for this report has been collected from desk research from:

- ACMA data;

- international regulatory sources including government publications, the ITU and the OECD;

- industry analyst reports; and

- other sources such as operator publications and news reports.

The analysis and commentary included in this report is based on information from these sources, including international examples, to provide an overview of FMC and FMS services in Australia and their potential future impact.

3. Overview of FMC and FMS

FMC and services that encourage FMS use different technologies, plans and marketing to achieve a very similar outcome—consumers using, to varying degrees, fixed and mobile services as one service. This ranges from using one device to mainly using a mobile service at the expense of fixed activity.
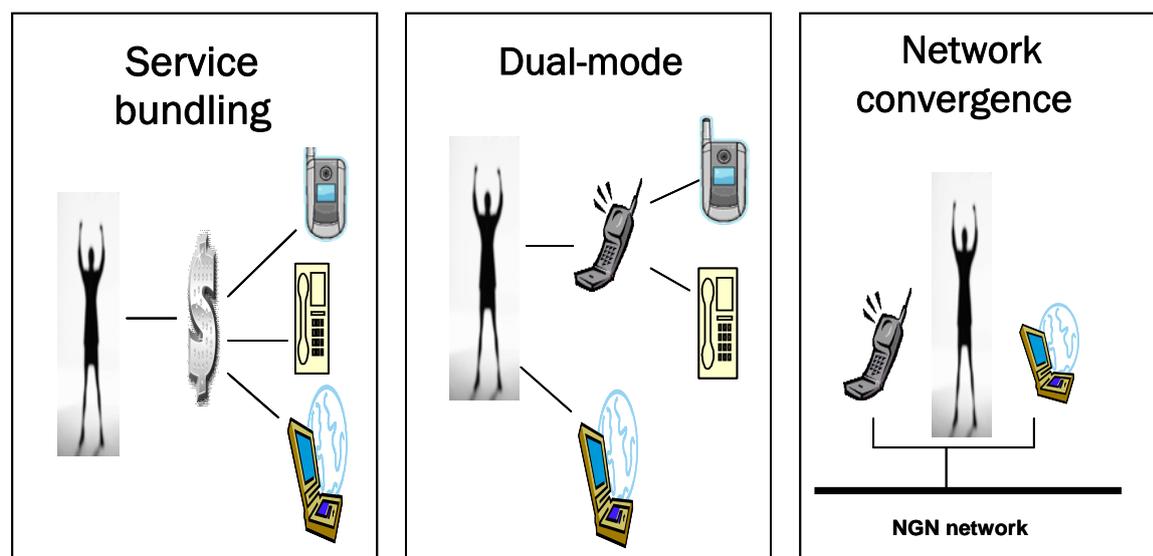
3.1. FMC

Stages/types of FMC

There are various definitions of FMC, depending on who is defining the service. This report identifies three types of FMC:

1. Service bundling.
2. Dual-mode services.
3. Network convergence.

There are different stages of FMC within these types.

Figure 1   Types of FMC

1. Service bundling

This type of FMC requires no actual convergence at the network or handset level. Rather, it is a commercial arrangement that offers cost savings or more convenience to users. At the simplest level, this can be a bundle of fixed and mobile services at a reduced cost or with other benefits. In the next stage of service bundling, the offer is more sophisticated than simple bundling and offers some elements of a converged service.

Telecom New Zealand OneBill

Telecom New Zealand offers OneBill, an integrated mobile/home phone bill. This plan goes beyond simple bundling to offer customers the option of an integrated home and mobile voicemail box, whereby messages for both the fixed-line and the mobile are directed to the same voicemail repository.[8]

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2. Dual-mode services

This type of FMC requires a dual-mode handset that can carry calls over the mobile network and the network used for fixed calls. Initial versions of these services were not able to provide seamless handover and often supplied separate fixed and mobile numbers. In more recent versions, customers have received a single number and seamless handover between networks. This means that, for example, a user can start a conversation at home on one network and then get in his or her car and continue the conversation with a seamless handover to the mobile network (and vice versa).

These services are generally provided using cellular/WiFi connections. The user makes calls on the cellular network outside the home, and fixed calls over the WiFi connection at home and, depending on the package the carrier provides, possibly at other WiFi hotspots. In some cases, these services rely on a connection back to the PSTN for the fixed-line access.[9]

BT Fusion (UK)

The UK telecoms incumbent, British Telecom (BT), offers the FMC service BT Fusion. The handsets are dual-mode cellular/WiFi. Users are given a BT Home Hub that routes calls over WiFi from the converged handset when the customer is at home. Users can also have their calls routed over WiFi when they are in BT WiFi Hotspots.[10] An earlier version of the service relied on a PSTN connection.

BT Fusion has not been particularly successful with consumers. Total BT Fusion subscribers numbered 45,000 two years after the launch. It has been slightly more successful in with businesses—Ovum suggests that about 100,000 handsets have been sold.[11]

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3. Network convergence

In this type of FMC, fixed and mobile services share a common IP transport network. Convergence comes from core next generation networks improving interconnection with mobile networks and through wireless infrastructure in the access networks improving access to IP services.[12] A number of major operators have initiated Next Generation Networks (NGN) projects with the aim of saving

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[8] Telecom New Zealand website, accessed 14 May 2008, <http://www.telecom.co.nz/goonebill>.

[9] OECD, *Fixed-Mobile Convergence: Market Developments and Policy Issues*, 23 March 2007, p.17.

[10] BT website, accessed 14 May 2008,
    <http://www.productsandservices.bt.com/consumerProducts/displayTopic.do?topicId=23279>.

[11] Mike Cansfield, Ovum, *BT and Mobility*, 11 February 2008.

[12] OECD, *Convergence and Next Generation Networks,* 17–18 June 2008, p.14
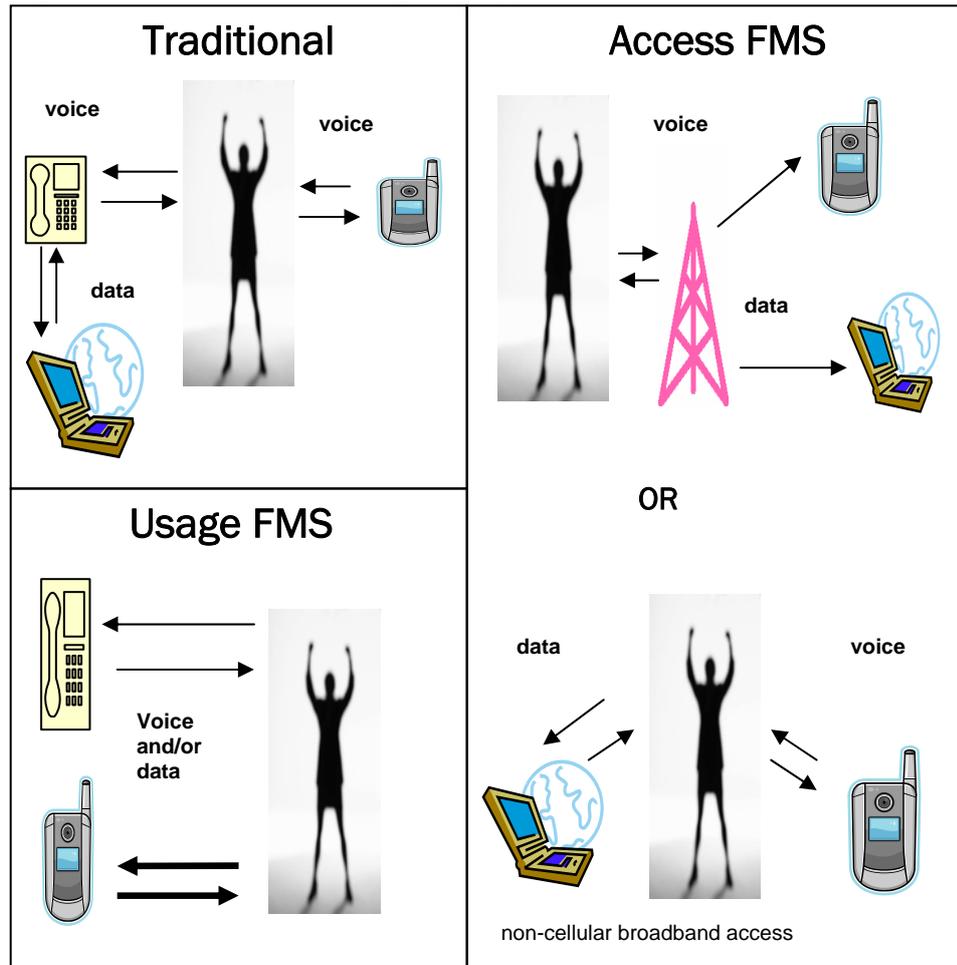
costs and extending the coverage of new services.[13] Incorporating NGN functionality and service delivery options will be a core objective for operators in the medium-term.

3.2. FMS

Types of FMS

There are two types of FMS—Access FMS and Usage FMS.

Figure 2   Traditional usage and types of FMS

1. Access FMS

Consumers of Access FMS only use a mobile service and have no fixed-line access. There are two sub-types of access substitution—'cut the cord' and 'straight to mobile'.

Users who have 'cut the cord' previously had access to both fixed and mobile services, and have chosen to relinquish their fixed-line access and use their mobile services exclusively. 'Straight to mobile' users have never had fixed-line access; their first and only experience of communications is through mobile services. This option can be popular among students or young people who move out of home and only use their mobile phone. Their families may have had fixed-line access but this group has never been a bill payer for a fixed-line access.

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[13] OECD, *Convergence and Next Generation Networks,* 17–18 June 2008; box 3.1, p.16

In developing countries with poor fixed-line coverage, a substantial proportion of the population may have to go straight to mobile. For example, fixed penetration in the Philippines and Indonesia is stagnant at about five per cent, while mobile penetration is more than double that amount and continues to grow.[14] In Australia, however, fixed-line coverage is nearly universally available.

Homezone service

There are a number of services offered by mobile operators that seek to encourage users to be 'mobile-only'. One such service, 'homezone', allows users to make calls at fixed-line prices with their mobile handset at a specified 'home' location.

This service is popular in Germany, where it is offered by several mobile operators. Mobile operator O2 Germany offers a homezone service under the name Genion. Calls made from and to the 'homezone' are charged at fixed-line rates. This is achieved through the use of call diverts rather than a converged handset or network. As at 31 March 2006, 3.7 million of O2's 10 million customers (37 per cent) were Genion subscribers. O2 Germany estimated that 20 per cent of Genion subscribers had gone 'mobile-only'.[15]

Hutchison's now-closed CDMA mobile operation, Orange, introduced a homezone-like service, Orange One in 2000. Using a wireless local call solution, users were able to make and receive untimed local calls within their 'local zone' and mobile calls everywhere else on the same device. They were given fixed-line and mobile numbers, and paid 'follow me' rates to have calls to their fixed-line number diverted to their mobile when they were outside the 'local zone'.[16] The service has not been available to new subscribers since 2001. Orange briefly introduced a similar service, Mobile+Home, in late 2005. The service ceased to be offered after the closure of the Orange CDMA network in 2006.[17]

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2. Usage FMS

Usage FMS refers to users with both fixed and mobile access using their mobile phone to make calls increasingly at the expense of fixed-line usage. Consequently, users are still retaining their fixed-line access, but the rate of fixed-line usage is declining because consumers are using other devices to communicate.

Mobile operators offer a variety of packages that aim to increase mobile phone usage at the expense of the fixed-line by reducing consumer perception of the mobile price premium. Pricing strategies can include offering large buckets of minutes for a set fee, unlimited or flat-rate tariffs and capped call tariffs (where customers pay a certain amount for allotted minutes, after which a call is free).[18]

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[14] Nathan Burley, Ovum, *Fixed-to-Mobile Substitution in Asia-Pacific*, 30 June 2006, p.8.

[15] Carrie Pawsey and Angel Dobardziev, Ovum, *FMS Strategies: Taking a Slice of the Fixed Revenue Pie*, 18 July 2006, p.18.

[16] ZDNet, 'One Phone is All You Need', 16 September 2001, accessed 14 May 2008, <http://www.zdnet.com.au/reviews/coolgear/mobiles/soa/One-phone-is-all-you-need/0,139023387,120105979,00.htm?feed=pt_future>.

[17] Stuart Corner, 'Hutch's CDMA Customers Will Lose PSTN Numbers', *ITWire*, 15 May 2006, accessed 17 June 2008, <http://www.itwire.com/content/view/4303/127>.

[18] Carrie Pawsey and Angel Dobardziev, Ovum, *FMS Strategies: Taking a Slice of the Fixed Revenue Pie*, 18 July 2006, p.17.

3.3.   FMC and FMS in Australia

FMC

In Australia, FMC activity is currently predominantly restricted to the service bundling stage, although research consultancy Telsyte has suggested that dual-mode FMC handsets will begin to be trialled in the second half of 2008.[19] Vodafone Australia has also recently announced intentions to launch a FMC service targeting SMEs.[20]

Bundling in Australia

Bundled fixed and mobile services are common in Australia. Telstra offers reward points to customers bundling other services, including mobile, with their home phone.[21] Optus offers OptusOne home phone and mobile bundles that include a dollar value of fixed and mobile calls (depending on the chosen OptusOne plan) for a set monthly fee, after which extra charges apply.[22]

Access FMS

Two mobile operators, 3 and Virgin Mobile, have launched different strategies to provide all of a single user's communication needs. 3 bundles mobile services and broadband, and Virgin Mobile offers fixed, mobile and internet services over the cellular network.

Bundling mobile and broadband

The mobile operator 3 has introduced mobile broadband plans for consumers over its HSDPA network. The broadband plans offer average speeds of between 600 kbps and 1.5 Mbps (within the broadband coverage area) with a download limit of 1 GB.[23] 3 also offers a mobile and broadband bundle.[24]

Mobile operator as a full service provider

Virgin Mobile offers a Broadband@Home package that offers fixed phone and internet services over a HSDPA network. Virgin provides a 3G home modem that allows users to access the internet and make calls through their home phone. The $60 per month plan gives customers 512 kbps internet speeds; 2 GB download allowances; and unlimited calls to local, national and Virgin mobile numbers (some restrictions apply).[25]

These packages represent different strategies to further encourage Access FMS by giving customers a fixed broadband alternative that allows them to exclusively use the cellular network for their voice and data needs.

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[19] Jo Best, 'Telstra, Optus "Will Delay FMC Launches",' ZDNet, 8 January 2008, accessed 14 May 2008, <http://www.zdnet.com.au/news/communications/soa/Telstra-Optus-will-delay-on-FMC-launches-/0,130061791,339284909,00.htm>.

[20] http://www.vodafone.com.au/stelprd/groups/webcontent/documents/webcontent/dev_005772.pdf

[21] Telstra website, accessed 29 May 2008, <http://www.telstra.com.au/rewardoptions/options.htm>.

[22] Optus website, accessed 29 May 2008, <http://personal.optus.com.au/web/ocaportal.portal?_nfpb=true&_pageLabel=Template_wRHS&FP=/personal/bundles/optusone&site=personal>.

[23] 3 website, accessed 14 May 2008, <http://www.three.com.au/threestore/mobilebroadband/USBCap15.xhtml>.

[24] 3 website, accessed 14 May 2008, <http://www.three.com.au/cs/ContentServer?subId=1156241342637&homeId=1153120041618&c=Page&pagename=Three%2FPage%2FServiceTemplate&p=1194499296176&cid=1202087495659>.

[25] Virgin broadband website, accessed 14 May 2008, <http://www.virginbroadband.com.au/wirelessbroadband/broadband-at-home.aspx>.

Usage fms

Mobile operators in Australia have devised a variety of strategies to change consumer perceptions of the high cost of mobile phone calls. For example, capped plans offer an allotted amount of minutes for a set monthly payment, after which extra charges apply. The value of the bucket of minutes offered is higher than the cost of the monthly payment by varying degrees, depending upon the price plan chosen. These plans encourage Usage FMS as consumers are able to make cheaper calls on their mobile—many consumers may go 'mobile-only' on the basis of these plans alone.

Australia in the international context

The FMC strategies used in Australia are largely confined to basic service bundling. While service bundling is common in other countries, some have also introduced dual-mode FMC services. None of these offerings have reached mainstream acceptance and some, like Deutsche Telekom's FMC offering, have been shut down. Table 1 outlines selected dual-mode service offerings available internationally.

Table 1: Dual-mode FMC services in selected countries

Country	Operator
Italy	Telecom Italia (fixed incumbent)
France	Orange (fixed incumbent France Telecom)
United Kingdom	BT (fixed incumbent)
Denmark, Sweden, Norway	TeliaSonera (fixed incumbent in Sweden)
Japan	NTT DoCoMo (mobile operator)

Strategies to encourage Usage FMS are well established in Australia, as they are in other developed countries. Aggressive campaigns to encourage Access FMS are less well established as this service tends to be offered by mobile operators with smaller numbers of subscribers, which limits their impact on the communications sector. In Germany, for example, the introduction of homezone-type services by a major mobile operator resulted in the other operators providing similar services.

4. Development of FMC and FMS

The development of FMC and FMS is heavily influenced by the structure of the communications sector and supply-side drivers, as well as emerging trends in these areas.

4.1. Drivers for suppliers

Some industry factors are a significant impetus for operators to introduce FMC and services that encourage FMS. The interplay between drivers for suppliers and selected industry factors is outlined in Table 2.

Table 2: Industry factors and drivers for suppliers to introduce FMC and FMS services

Industry factors	Desired outcomes of provision of FMC and FMS services
Fixed-line access, usage and revenue decline	Churn reduction, revenue/ARPU enhancement
Maturity of the communications sector	Differentiation, revenue/ARPU enhancement
Impact of new services	Churn reduction
Network investment	Cost savings, revenue/ARPU enhancement

Churn reduction (customer retention)

Consumers moving to mobile for both use and access, as well as the development of other new services such as VoIP, can negatively affect fixed-line subscriber numbers. By offering a service that combines the benefits of fixed and mobile services, FMC can be a way for a fixed-line operator to retain customers. FMC services do not necessarily connect back to the PSTN, so this is not expected to stem the decline in PSTN voice traffic. However, an operator can use FMC to retain customers and the revenues they generate through other services on its network.

Differentiation

In sectors where subscriber numbers are reaching saturation point, differentiation can be a tool to poach customers from other operators. FMC or services encouraging FMS can provide operators with a point of difference and this driver is likely to increase in importance as the subscriber growth of Australia's mature mobile industry, having reached saturation point, continues to slow.

Revenue/ARPU enhancement

FMC or services encouraging FMS can be a way for operators to enhance their average revenue per user (ARPU) by signing customers up to new services (such as FMC) or increasing their use of the

same service (such as the homezone FMS). Their extra functionality can also increase revenues as customers look for more advanced services.

Genion Homezone service

O2 Germany offers an Access FMS 'Homezone' service under the brand name Genion. The service has had a high level of take-up and O2 has commented that Genion has a significantly lower churn rate and higher revenues compared to other mobile products.[26]

Capturing new customers

FMC or services encouraging FMS allow operators to offer new services and so gain access to previously inaccessible sectors. For example, mobile operators offering an FMC service may be more attractive to enterprises that have previously been hesitant to go 'mobile-only' due to their need for high reliability and quality in their fixed services.[27]

Cost savings

The integration of the mobile and fixed cost base in FMC services means potential cost savings. The level of these savings depends upon the type of FMC service offered as well as the operator's network and organisational structure. Cost savings areas may include the mobile radio access network, subscriber acquisition/retention, mid and back office, and network management.[28]

4.2. Influences on supply

There are several industry characteristics that will influence the development of FMC and FMS.

Fixed-line sector

Fixed-line access decline

The rate of fixed-line access decline will have an important effect on the attractiveness of FMC offers for suppliers. In countries with a high rate of fixed-line access decline, there is a stronger incentive for a fixed operator to stabilise revenues and retain customers through services such as FMC.

Australia does not have the same level of fixed-line access decline as the US, Canada and other selected European countries. Fixed lines in Australia peaked at 11.66 million in 2004, falling by 740,000 between 2004 and 2007—a decline of six per cent.

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[26] O2 website, accessed 14 May 2008, <http://www.o2.com/about/o2_germany.asp>.

[27] Angel Dobardziev, Ovum, 'The Strategic Case for Fixed-mobile Convergence', *Telecommunications Journal of Australia*, Vol. 55, No. 4, Summer 2005, p.28.

[28] Angel Dobardziev, Ovum, 'The Strategic Case for Fixed-mobile Convergence' *Telecommunications Journal of Australia*, Vol. 55, No. 4, Summer 2005, p.25.

Figure 3: Australian fixed lines and percentage change year-on-year
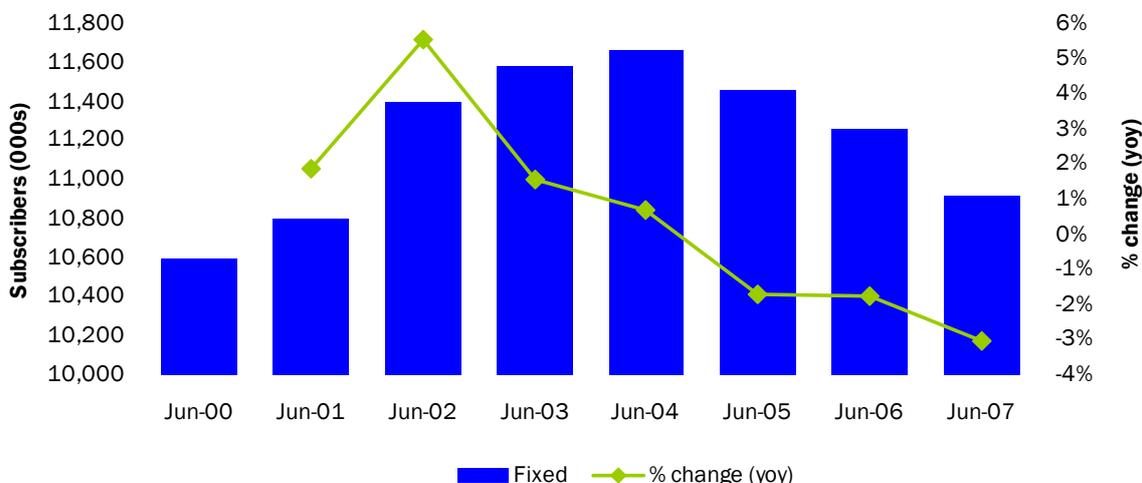
Source: *ACMA Communications Report 2006–07*

This rate is similar to the proportional decline in subscribers in many other countries. Some, including the UK, Canada, the US and Norway, have been experiencing fixed-line decline for much longer (see Figure 4), with a greater impact on the fixed-line sector. In the US, fixed-line access declined by nine per cent from its 2000 peak by 2005, while in Canada the rate of decline from its 2001 peak was eight per cent by 2005. It follows that the level of fixed-line decline was even greater by 2007.

Figure 4: UK, Canada, Norway and US fixed-line decline and percentage change year-on-year
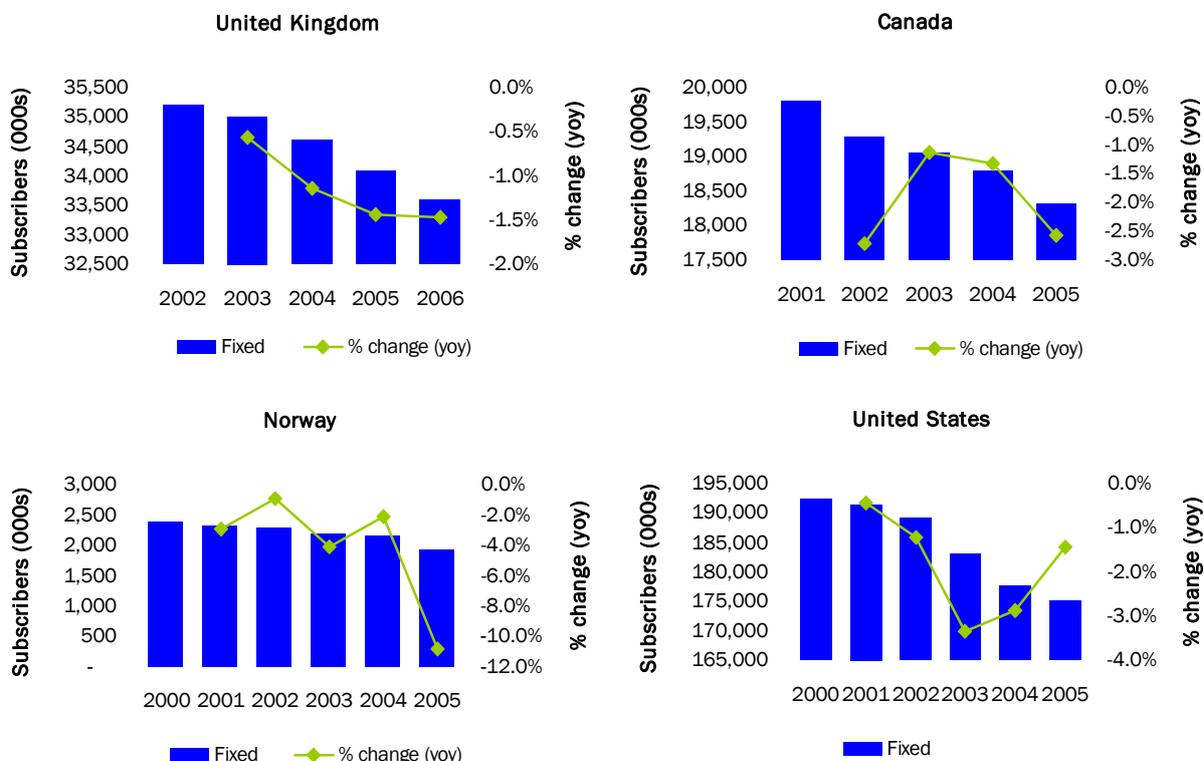
Source: Ofcom, Statistics Canada, OECD and FCC

While Australia is experiencing a similar rate of decline in fixed-lines, this started later, as shown in Table 3.

Table 3: Year fixed-line access peaked in selected countries

Market	Year fixed-line access peaked
Australia	2004
Canada	2001
France	1997
Germany	Prior 1997
Japan	1997
Norway	Prior 1997
UK	2001
US	2000

Source: Country communications regulators, OECD

The earlier decline in fixed-line access in these countries may be due to their earlier introduction of:

- broadband, allowing the cancellation of secondary lines used for a dial-up internet connection[29];

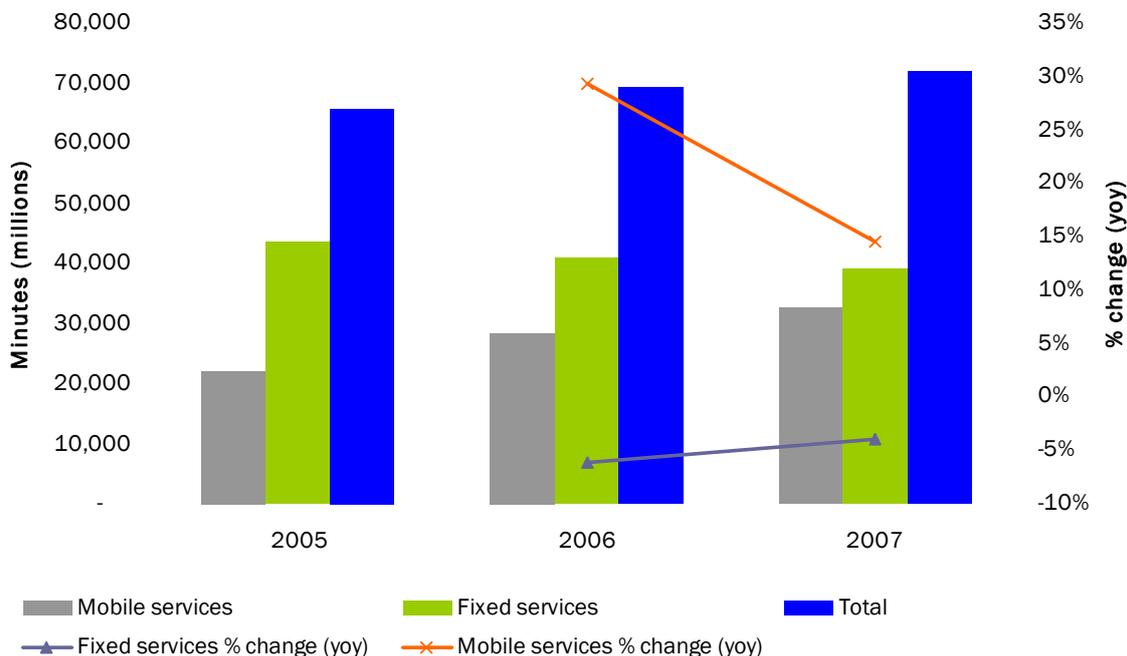- naked DSL; and

- more aggressive mobile plans.

This time-lag means that the level of fixed-line decline has been less notable in Australia and so may have less influence on the introduction of FMC as elsewhere.

Usage substitution

Usage substitution can also encourage the introduction of FMC services as a way to stem the flow of traffic from fixed line to other services. A reduction in fixed-line access is not a completely accurate representation of FMS—consumers may keep their fixed-line access while using mobile phones for the majority, if not all, of their voice traffic. In Australia, the number of overall voice minutes has increased by 10 per cent between 2005 and 2007. However, highlighting the increasing shift from fixed to mobile telephony, fixed minutes declined by 10 per cent over the same period, compared to a 48 per cent increase in mobile minutes.

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[29] Many countries do not have untimed local calls. This inflates the cost of dial-up access compared to countries with untimed local calls and hence encourages the earlier introduction and take-up of broadband internet access.

Figure 5: Australian fixed and mobile usage and change year-on-year

Mobile services — Fixed services — Total
Fixed services % change (yoy) — Mobile services % change (yoy)

Australia has a comparable rate of usage substitution to the UK and a higher rate of decline in fixed minutes than France. Fixed-line usage decline reached five per cent in the UK in 2006, while in France it was one per cent after a one per cent recovery in 2005. In both countries, as in Australia, the total level of usage is increasing, indicating that mobile traffic is substituting in large part for the decline in fixed-line traffic.

Figure 6: France and UK usage substitution and change year-on-year
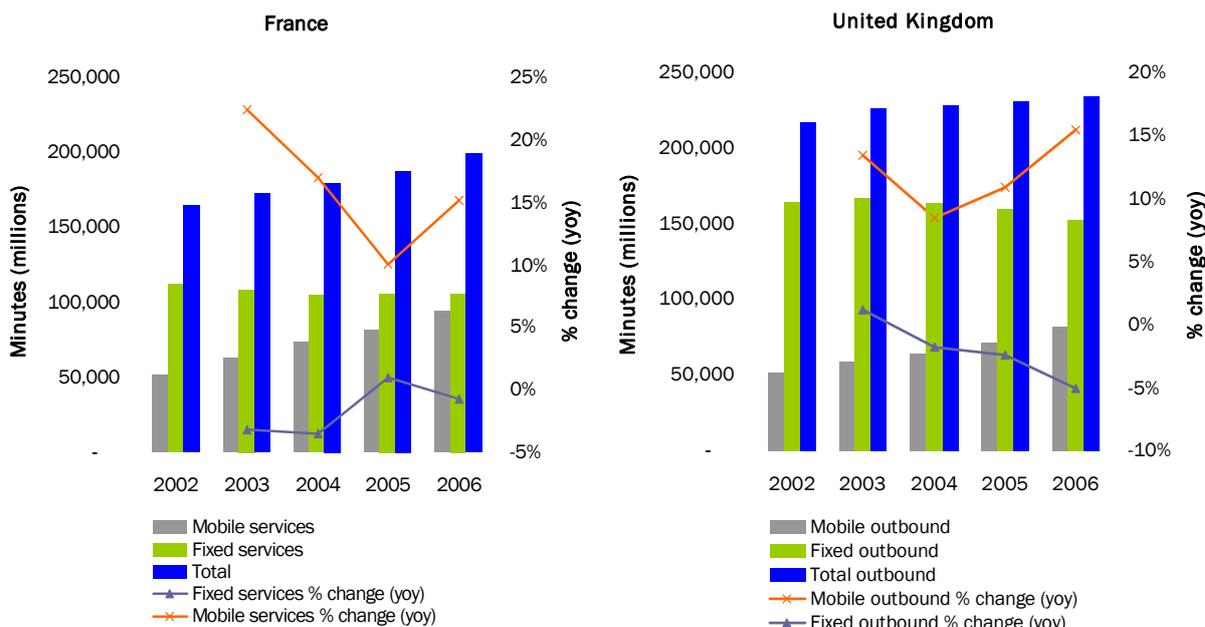
This level of fixed-line usage decline is a driver for the introduction of FMC services as a way to protect fixed-line traffic. However, the strength of this driver will be influenced by whether the fixed-line providers losing traffic also own the mobile operators that are increasing their traffic levels.

Industry operator business structure

The business structure of operators in the communication sector can influence the development of FMC and FMS. For example, in countries where the major fixed-line operators have a strong mobile presence, as is the case in Australia, there may be less incentive to introduce FMC services. Declining fixed-line revenues[30] will be offset by increasing mobile revenues, making FMC services that help to stabilise fixed-line usage levels less important. The investment required for FMC services, depending on the type of service deployed, may not justify the potential return.

Equally, in a mobile sector with a large number of full-service operators, services aggressively encouraging FMS are less likely or may be introduced by the mobile-only operators. The potential benefits of FMS for full-service operators could be outweighed by the potential risk of reducing the fixed-line subscriber base.

In Australia, most of the fixed operators also offer mobile services. At the same time, of the four major mobile operators (Telstra, Optus, Vodafone and 3), two—Telstra and Optus—are full-service and hold 80.8 per cent of mobile subscribers.[31] These factors will influence the development of FMC and FMS in Australia.

Maturity of the sector

In a more mature sector, new subscriber growth slows. Operators are no longer able to increase their customer bases solely through new additions; they must also source customers from competitors. FMC and services encouraging FMS can be a point of difference from competitors.

As has previously been established, the number of fixed lines is declining in Australia. At the same time, mobile subscriber growth slowed to about eight per cent in the 2006–07 financial year.

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[30] It should be noted that even if fixed usage is reduced to zero, operators will still source fixed-line access revenues.
[31] ACCC, *Telecommunications Market Indicator Report 2005–06*, August 2007, p.13.

Figure 7: Australian mobile subscribers and percentage change year-on-year
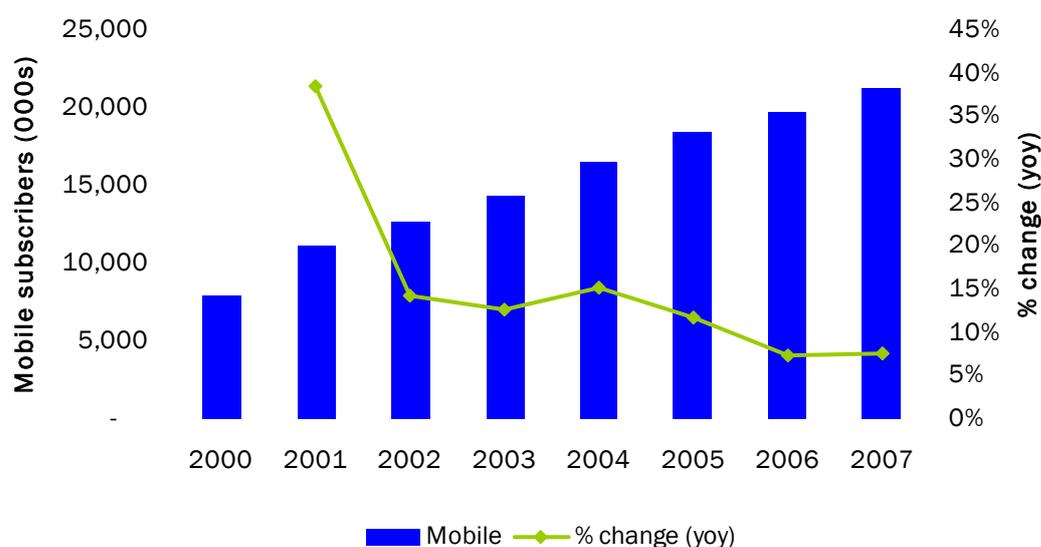
Note: Years are financial years (12 months to June)

Source: ACMA Communications report 2006–07

Mobile penetration in Australia reached 107 per cent in June 2007.[32] FMC or services encouraging FMS may be a way for mobile operators to diversify and increase their customer bases as mobile growth continues to slow.

Impact of new services

A reduction in fixed-line usage is not only due to the increasing use of mobile phones. New services, such as Instant Messaging (IM) and VoIP, can also affect the level of fixed-line usage. The impact of these services is not restricted to the fixed-line. Popular IM services, including Yahoo! Messenger and MSN Messenger, are also available on many Australian mobiles, and 3 has introduced mobile phone plans that incorporate allocated minutes for calls made on Skype, the popular VoIP application.

The impact, or potential impact, of these services could encourage operators to roll out services such as FMC to protect traffic levels on their networks.

VoIP

High take-up levels of VoIP could reduce both fixed-line access and usage. The level of impact will depend on the usage patterns of VoIP subscribers and the VoIP packages on offer. For example, many users may only use VoIP for specific purposes, such as long-distance calls, and retain the PSTN fixed-line for all other calls. Others may entirely replace the PSTN with a VoIP phone—a scenario likely to become more common as the take-up of naked DSL increases. At the same time, VoIP providers offer many different types of plans—some presented as a full-service phone line and others as a complement to the PSTN fixed-line.

While estimates are available on the number of VoIP subscribers in Australia, there is as yet little information on the behaviour of those subscribers and how this affects fixed-line usage. Research in the UK found that only 14 per cent of VoIP users used the service every day. In addition, VoIP users

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[32] ACMA, *ACMA Communications Report 2006–07*, 2008, p.37.

were more likely to have both fixed and mobile connections, indicating that VoIP is not replacing fixed-line access. Reasons for this may include the common requirement to have a fixed-voice line in order to access broadband as well as the familiarity and ease of use of the fixed line.[33]

ACMA research found that 15 per cent of survey respondents had used VoIP.[34] This suggests, given the potential variability in the behaviour of different VoIP users, that VoIP is not having a strong impact on fixed-line access levels at present. However, no conclusive statement can be made until more information is available on the behaviour of VoIP users. The interaction of VoIP services with traditional fixed-line services, and their impact on the development of the communications sector, is an area to be closely watched in the future.

Mobile VoIP

Mobile VoIP services are beginning to be offered around the world. In Australia, 3 has introduced the Skypephone, which has a built-in button to provide quick access to the popular VoIP application Skype. Users of the phone can only call other Skype users; they cannot use the Skype function to connect to fixed and mobile numbers. Other 3 phones also provide access to VoIP via the Skype application. Skype calls are not included as part of data usage; they are measured separately. Users receive a set amount of Skype minutes per month, after which additional charges apply.[35]

The introduction of mobile VoIP will not only affect mobile traffic but also has the potential to influence fixed usage and access, as consumers can source cheap calls via their mobile. Its influence on the introduction of defensive plans like FMC will depend on the level of take-up and consumer usage behaviour.

Network investment

As operators convert their networks to NGNs, more advanced FMC services will be possible. The level of network investment may influence the development and take-up of FMC services in Australia. One example is Telstra's ongoing network transformation program, which includes changing the core network to an all-IP infrastructure.

4.3.   Influences on demand

Bundling

Bundling of services is a customer retention tool—customers are less likely to leave an operator with whom they have multiple services. Customers often receive financial or value-added benefits from subscribing to multiple services from the one operator. A high level of bundling may influence the development of Access FMS, as customers may be less willing to give up their fixed-line when they are receiving benefits from having the service included in a bundle.

In Australia, there are many bundling options for customers. ABS figures show that 38 per cent of ISPs with more than 1,000 active subscribers also offer fixed-line voice services (excluding VoIP), while 21 per cent offer mobile telephone services.[36] Telstra offers reward options to customers who bundle their fixed-line access with mobile, internet or subscription television services. Reward

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[33] Ofcom, *The Communications Market 2007*, 23 August 2007, p.312.
[34] ACMA, *The Australian VoIP Market*, May 2008, p.1.
[35] 3 website, accessed 24 April 2008,
    <http://xseries.three.com.au/xseries/mobiles_3skypephone_overview.shtml>.
[36] ABS, *Cat. 8153.0 Internet Activity Survey*, December 2007.

options can include a certain number of free local calls, SMSs, or family calls.[37] Optus offers home phone and broadband as well as home phone and mobile bundles. Benefits can include a cap on the monthly cost of calls or cash discounts.[38]

Take-up of bundling services appears to be relatively common in the Australian communications sector. Optus reported that 78 per cent of its **hybrid fibre** coaxial **cable** HFC customer base that had local telephony—534,000 as at 31 December 2007—had bundled services.[39] Fifty-one per cent of AAPT's customer base had bundled services as at 30 June 2006.[40] This factor could be an important influence on the take-up of Access FMS in Australia.

Mobile price premium

When measuring the cost per minute of mobile and fixed calls, the mobile price premium in Australia appears to be falling. Figure 8 shows that mobile revenue per minute has decreased.

Figure 8: Mobile price premium in Australia
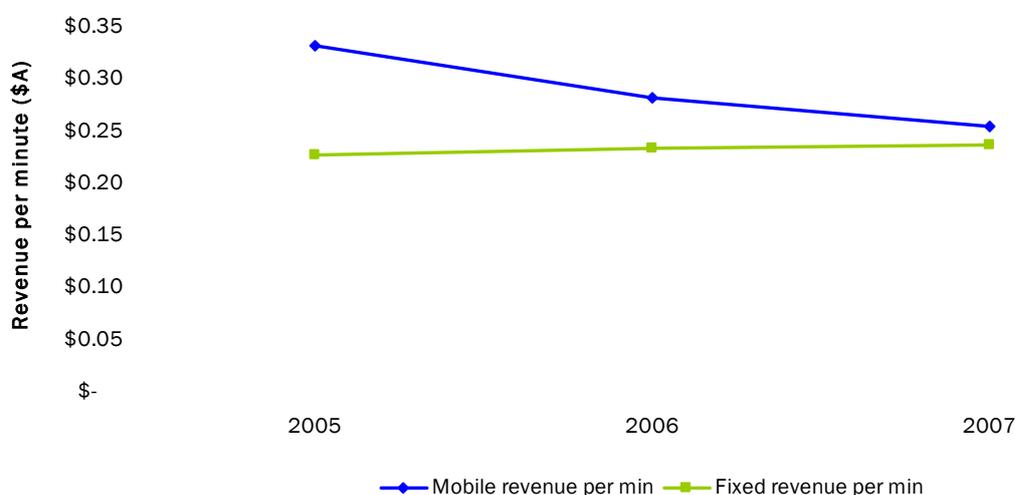
Note: Fixed revenues include basic access charges
Source: ACMA industry data request (unpublished)

If the price premium continues to fall, the cost of mobile calls may become less of an issue to consumers considering giving up their fixed-line phone. However, the growth of VoIP may also affect the mobile price premium, depending on the pricing offered. Should VoIP take-up reach mainstream levels, the difference between mobile and VoIP pricing will also affect consumers' willingness to go 'mobile-only'.

Consumer perceptions of the mobile premium also need to be considered. In one survey of residential consumers over the age of 18, 37 per cent of respondents, when asked reasons for considering replacing a fixed-line phone service, stated that they would if mobile calls were cheaper. At the same time, a key reason for respondents not being interested in giving up their fixed-line phone was that

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[37] Telstra website, accessed 4 April 2008, < http://www.telstra.com.au/rewardoptions/options.htm>.

[38] Optus website, accessed 4 April 2008, <http://personal.optus.com.au/web/ocaportal.portal?_nfpb=true&_pageLabel=Template_wRHS&FP=/personal/bundles&site=personal>.

[39] SingTel, *Management Discussion and Analysis of Financial Condition, Results of Operations and Cash Flows for the Third Quarter and Nine Months Ended 31 December 2007*, SingTel, p.46, accessed 4 April 2008, <http://home.singtel.com/investor_relations/financial_results/default.asp>.

[40] Telecom New Zealand, *2006 Annual Report*, p.50, accessed 4 April 2008, <http://www.telecom.co.nz/binarys/telecom-annual-report-05-06.pdf>.

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fixed-lines offer cheaper calls.[41] In addition, consumers may also be unwilling to have a phone number that means the people calling them incur higher charges. Consumer attitudes are discussed further in the consumer expectations section (p.24).

Broadband

Broadband industry characteristics can influence the development of FMC and FMS. In Australia, consumers who have DSL connections must also often have a fixed-line phone to access broadband. Figure 9 shows that the majority of broadband users in Australia access the internet through DSL technology.

Figure 9: Proportion of broadband connections that are DSL
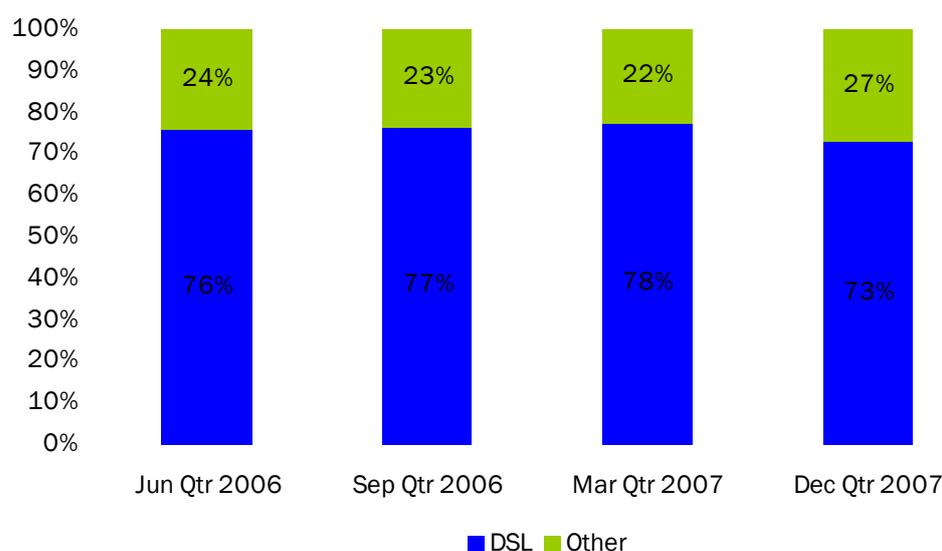
Source: ABS, Internet Activity Survey, December 2007

Given that 73 per cent of broadband users in Australia were connected to the internet via DSL as at December 2007, the requirement to retain a fixed line will limit the interest of consumers in going 'mobile-only' for their voice requirements.

Naked DSL

Naked DSL is a service that allows consumers to access DSL broadband without the requirement to have a fixed-line phone. This enables consumers to go 'mobile-only' for voice and offers opportunities for mobile operators to promote services aimed at increasing the rate of Access FMS for voice. Current providers of naked DSL include iiNet, Internode and Exetel. Other operators, including TPG and AAPT, have also expressed interest in offering such a service in the future.[42] Given the large numbers of broadband providers in Australia, the real impact of naked DSL will depend upon the number of providers who offer the service and the level of consumer take-up.

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[41] ACMA, *Telecommunications Today Report 5: Consumer Choice and Preference in Adopting Services*, May 2008, p.8.

[42] iiNet, <www.iiNet.net.au>, Internode, <www.internode.com.au> and Exetel, www.exetel.com.au; Jo Best, 'AAPT Promises "Naked DSL" by Christmas', ZDNet Australia, 21 August 2007, viewed 3 April 2008, <http://www.zdnet.com.au/news/communications/soa/AAPT-promises-naked-DSL-by-Christmas/0,130061791,339281360,00.htm>.

Wireless broadband

A fixed-line service can be bypassed if Australian consumers choose to acquire broadband internet access from specialist wireless broadband providers such as Unwired, Personal Broadband Australia and others. Mobile providers are offering broadband over their 3G networks and cellular technologies are providing increasingly higher bandwidth. For example, Telstra's NextG network now offers peak rates of 14 Mbit/s (to be increased to 42 Mbit/s in 2009)[43] and Optus has recently announced an upgrade of its mobile network that will deliver up to 7.2 Mbit/s broadband speeds.[44] As with any networked service, the speeds capable of being delivered to individual customers will depend on factors such as the number of concurrent users on a cell and backhaul constraints. However, the faster data speeds and ease-of-use factors such as no internal wiring required in the home may attract increasing numbers of customers.

Figure 10 shows that, while wireless broadband users are still a fairly small proportion of total broadband connections, the number of wireless connections are growing rapidly, reaching 481,000 subscribers as at December 2007.

Figure 10: Wireless broadband connections in Australia
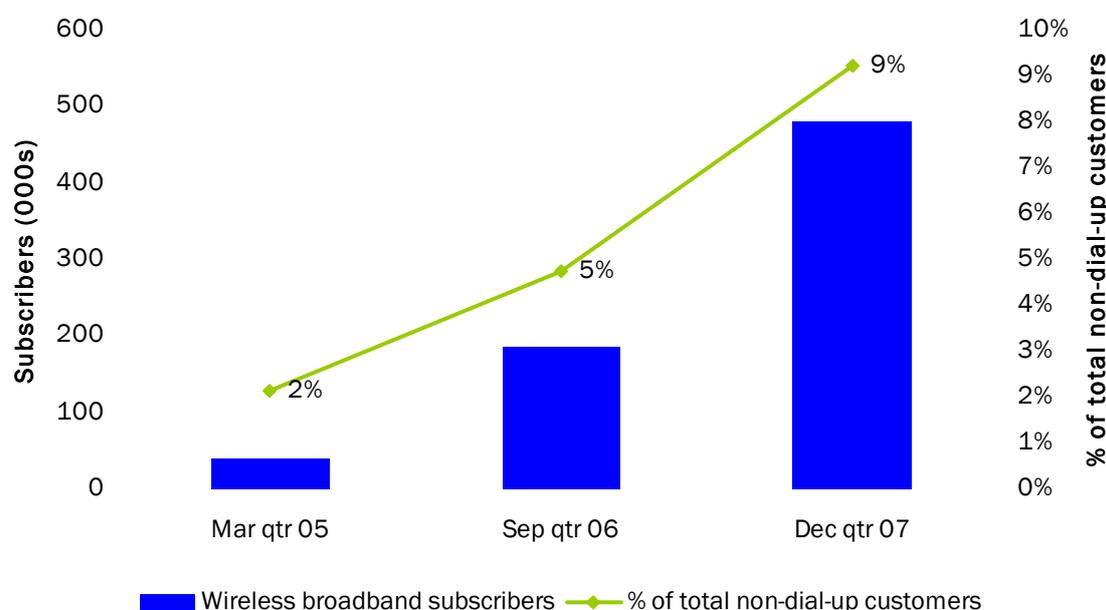
Source: ABS, Internet Activity Survey, December 2007

The increasing take-up of wireless broadband services may influence the willingness of consumers to go 'mobile-only'.

Networks

WiFi

Many FMC services use WiFi/cellular solutions where 'fixed' calls are routed over the internet via WiFi connections. Customers can often access fixed-line prices through their home WiFi connection

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[43] Business Spectator, 'KGB Interrogation: Donald McGauchie', 3 May 2008.

[44] Optus press release, 7 May 2008, accessed 14 May 2008, <http://www.optus.com.au/portal/site/aboutoptus/menuitem.813c6f701cee5a14f0419f108c8ac7a0/?vgnextoid=b31a88baa20c9110VgnVCMServer29867c0aRCRD&vgnextchannel=b54ce67d77677110VgnVCM10000029867c0aRCRD&vgnextfmt=default>.

as well as through WiFi hotspots. BT offers customers of its BT Fusion FMC service cheaper calls at any of its BT WiFi hotspots.[45] The number of WiFi spots offered by an FMC service may also influence the take-up of such a service.

Network coverage/reliability

The perceived reliability of mobile networks may influence FMS trends, particularly Access FMS. In countries where the mobile network is seen to have patchy coverage or inferior reliability, consumers may be less willing to give up their fixed-line phone.

While mobile networks in Australia cover over 98 per cent of the population,[46] consumer research suggests that the perceived inferior reliability of mobile networks compared to the fixed-line and problems with mobile use and coverage are barriers to going mobile-only. When asked why they would not consider replacing the fixed-line service, 19 per cent of respondents stated that fixed calls are more reliable and of better quality, and 17 per cent stated that they had problems with mobile use and coverage.[47]

Consumer expectations

Consumer wants and expectations, as well as factors such as demographics and the complexity of services, will influence the development of FMC and FMS services.

Demographics

Demographics influence consumer attitudes to fixed and mobile services, and their interest in FMC and services encouraging FMS. Research has found that respondents who view the fixed line as their main form of communication tend to be in older age groups (86 per cent of those over 61 and 91 per cent of retirees).[48] Consequently, older populations may have less interest in such services.

Handsets and service complexity

Handset availability, functionality and complexity of use will all impact consumer interest in FMC and services encouraging FMS. These factors could also influence the ability of new entrants to offer services using existing infrastructure.

While services encouraging FMS can use a standard mobile phone, FMC services offering converged devices require customers to buy new phones. Depending upon the complexity of the service, consumers may need extensive education and training, which could influence their interest in the service. For some customers, FMC services may prove to be too complex. At the same time, the additional functionality of a converged device may be an attraction for some consumers, particularly as many customers nominate ease-of-use as one of the main benefits of mobile phones.[49]

Equally, if there is a limited selection of handsets or they require new skills to operate, this may also affect consumer interest in FMC and FMS. Handset availability depends on a number of factors including the size of mobile operators and the sector, as well as the number of handsets with the required functionality. The size of mobile operators is unlikely to be a major influence on handset

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[45]BT website, accessed 14 May 2008, <http://btfusion.hotspot-directory.com/index.php>.

[46] ACMA, *Communications Report 2006–07*, 2008, p.36.

[47] ACMA, *Telecommunications Today Report 5: Consumer Choice and Preference in Adopting Services*, May 2008, p.8.

[48] ACMA, *Telecommunications Today Report 5: Consumer Choice and Preference in Adopting Services*, May 2008, p.6.

[49] IDC, *Fixed-mobile Convergence: Unifying the Communications Experience*, November 2005, p.22 and p.29.

availability, given that the two largest mobile operators—Telstra and Optus—would be the most likely contenders to offer FMC services. However, the range of handsets will be affected by the global availability of handsets with the required functionality.

Attitudes to fixed and mobile services

The ACMA report *Telecommunications Today Report 5: Consumer Choice and Preference for Adopting Services* identifies three consumer segments—enthusiastic embracers, mainstream followers and techno non-adopters. The majority of consumers are mainstream followers who see fixed and mobile as complementary rather than substitutive services. Among this group, mobiles tend to be used for short conversations and texting, while landlines are used for longer phone conversations or long-distance calls.[50] A small proportion of consumers—techno non-adopters—rely solely on their fixed-line for voice communications. An increasing proportion of consumers (almost a quarter of respondents) are enthusiastic embracers who would consider giving up their fixed-line and going mobile-only. Table 4 shows the consumer behavioural profile of these sub-types.

Table 4: Consumer behavioural profiles

Enthusiastic embracers	Mainstream followers	Techno non-adopters
• Enjoy understanding and using new services/ technology.	• Try to keep up with services on a required basis.	• Need help or do not see a need to adopt new technology.
• Tend to be knowledgeable about and aware of the latest technology.	• Tend to follow the lead of the enthusiastic embracers. Do not want the hassle of seeking out information and understanding every new development. Do enough to simply enhance and aid their lifestyle.	• Are unlikely to adopt new technology unless pushed or helped by someone else. Do not easily integrate the technology into their lives or simply do not see a need for it.
• Are likely to do without the fixed-line telephone. • Are likely to actively use their 3G mobile for internet services. • Are heavier internet users who have traded up to faster speeds and/or wireless access. • Tend to come from a younger age group (18–30).	• Are likely to be users of both fixed-line telephones and mobiles. • May have a 3G-capable mobile phone but use it solely for communication. • Are moderate internet users. • Tend to be aged between 31 and 50.	• Are likely to be users of fixed-line telephones. Some do use mobiles. • Are less frequent users of the internet. • Sometimes do not see the need for certain services. • Tend to come from an older age group (50–60+).

Source: Woolcott Research. Consumer behavioural segments were based on focus group participants' answers to behavioural and attitudinal statements about telecommunications services. Published in ACMA, Telecommunications Today Report 5: Consumer Choice and Preference in Adopting Services.

These profiles indicate that, while the additional functionality provided by a FMC service may be welcomed by enthusiastic embracers, widespread take-up will be more difficult to achieve given the attitudes of the majority of consumers towards fixed and mobile services.

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[50] ACMA, *Telecommunications Today Report 5: Consumer Choice and Preference in Adopting Services*, May 2008, p.5.

Business customers

Businesses will have a different attitude to mobiles than will residential customers. Office-based enterprises may be unwilling to give up their fixed line if they are uncertain of the quality and reliability of mobile coverage within buildings. Research has found that small and medium enterprises (SMEs) are less likely, when compared with residential consumers, to substitute their fixed-line phones with other services. Reasons included requiring a fixed-line for internet access and the belief that consumers prefer to deal with businesses using fixed-line phones.[51]

At the same time, certain business types, such as tradespeople, may be interested only in mobiles for their communication services as their work is itself mobile. SMEs in the construction, recreation and transport industries are more likely to list mobile phones as their main form of communications.[52] Mobile plans can encourage some businesses to exclusively use mobile services; for example, Vodafone offers mobile office plans that allow users to make free calls to a designated Business Group of two or more mobile numbers. Small businesses can create a virtual office environment as employees can call each other for free, can call extensions rather than the whole mobile number and can hold conference calls using their mobile phones.[53]

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[51] ACMA, *Telecommunications Today Report 5: Consumer Choice and Preference in Adopting Services*, May 2008, p.8.

[52] ACMA, *Telecommunications Today Report 2: Take-up and Use by Small and Medium Enterprises*, January 2008, p.9.

[53] Vodafone website, accessed 4 June 2008, <http://www.vodafone.com.au/business/solutions/mobileoffice/mybusinesscapmobileoffice/index.htm>.

5. Implications

As FMC and services encouraging FMS become increasingly common features of the Australian communications environment, there will be important implications for the structure of the sector.

5.1. Merging of fixed and mobile

Blurring boundaries

Traditionally, fixed services and devices were clearly distinct from mobile services and devices. The two types of services—fixed and mobile—were provided by different technologies, on separate networks, with different customer equipment, serving different subscriber types, and with separate charging arrangements and divergent regulation.

The clear delineation between the services, and so the business models of the providers, is beginning to blur as similar services are offered over both fixed and mobile devices or applications become accessible over fixed and mobile networks. For example, Telstra allows fixed-line users with capable landline phones to send and receive text messages.[54] The Virgin Broadband@Home package blurs the boundaries by offering a phone service over the cellular network that has attributes of both fixed and mobile services.

As fixed and mobile services merge with each other and with data services, the basis for the regulatory distinctions between fixed and mobile is becoming increasingly problematic. The ability of the regulatory environment to distinguish between services and apply appropriate rules is also impeded.

New commercial models

The ongoing merging of fixed and mobile services will affect the commercial models of fixed and mobile operators. Multiple drivers including customer retention, revenue enhancement and ongoing network upgrades will result in more operators focusing on services that can offer the benefits of both fixed and mobile, and applications that can operate over fixed and mobile devices. At the same time, operators offering only fixed or mobile services may partner with each other in order to offer integrated services.

These trends may enlarge operators' range of services and result in changing industry dynamics, both for current operators and new entrants.

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[54]Telstra website, accessed 14 May 2008, <http://www.telstra.com.au/talkingtext/index.htm>.

5.2. The move towards mobile

Changing roles

The provision of 'homezone' and other services encouraging FMS allows mobile providers to fulfil the traditional role of fixed-line operators. Virgin Mobile's Broadband@Home product is an explicit example of this. As this trend continues and a higher proportion of customers go 'mobile-only', the role of the mobile operator in providing basic access services to customers will become more important. At the same time, these trends may increase the number of operators able to provide full voice and data services to consumers.

Traffic trends

As FMS trends increase, more traffic (both data and voice) will be carried over cellular networks. This will reduce the level of fixed-line traffic. At the same time, the introduction of FMC services that connect back to the broadband network rather than the PSTN voice network will further encourage the decline in fixed-voice traffic over the PSTN. Depending on the extent to which this occurs, and the interplay of other services such as VoIP, the volume of mobile traffic may overtake fixed traffic and become the more important of the two.

5.3. Changing industry dynamics

FMC and FMS trends will result in new services, applications and operators, supported by new technologies. In addition, services like VoIP and naked DSL, which are encouraging FMC and FMS, are also allowing non-traditional operators to enter the sector, and single-service providers to expand their service portfolios and compete with full-service (fixed-voice, mobile voice and data) providers. Inevitably, this will result in changing industry dynamics as operators enlarge their service portfolios, new entrants appear and operator share of subscribers for new and existing services is impacted.

5.4. Implications for consumers

Increasing complexity

As services converge, the products on offer for consumers will necessarily move away from the traditional fixed-line, mobile and internet access. Depending on how these services are marketed, it is likely to be increasingly complex for consumers to evaluate different services and plans. This is particularly true for the techno non-adopters. While consumers are increasingly engaged with and in control of their communications purchases, it will be important to monitor future consumer understanding of these new services. Some consumers, such as the elderly and techno non-adopters, may be entirely uninterested in adopting these new services. There is a risk that these consumers will be left behind as FMC and FMS become a mainstream part of the communications sector.

Portability

The convergence of services further integrates a consumer's separate communications identity— fixed number, mobile number and email address. As applications and services become more integrated, it is possible that a unitary identity may become increasingly important to consumers with less interest in retaining separate numbers and email addresses. The issue of portability will become important in this context, as currently only fixed and mobile numbers are portable and they are subject to different processes and rules.

Conclusion

FMC and FMS trends are part of an evolving communications environment and represent the blurring boundaries of fixed and mobile services. Australian FMC services are not as developed as FMC services available internationally. While Usage FMS trends are well established, more aggressive services aimed at consumers going 'mobile-only' are currently only being offered by the smaller mobile operators.

Development of FMC services is expected to be minimal in the short term because fixed-line access decline has not been as extensive as that experienced in the US, Canada and some European countries. Services such as naked DSL and VoIP are yet to reach the mainstream, reducing the imperative to defend the fixed-line network with FMC services.

Services encouraging Access FMS are also not expected to be available to the majority of customers in the short term. Full-service operators hold about an 80 per cent share of mobile subscribers[55] and are unlikely to want to introduce aggressive plans aimed at persuading customers to go 'mobile-only'. However, as the Australian communications sector develops, both FMC and services encouraging Access FMS will become more prominent in the medium term. Levels of Usage FMS are expected to increase as a maturing mobile sector facilitates the introduction of more generous mobile plans resulting in further erosion of fixed traffic by mobile.

Consumers will also have an important influence on FMC and FMS development. Factors such as service complexity and consumer attitudes to fixed and mobile services will influence the take-up of FMC and services encouraging FMS.

FMC and FMS trends have a number of important implications for the Australian communications sector. As an increasing number of services offered contain attributes of both fixed and mobile, it will become more difficult to differentiate between fixed and mobile services. This merging of fixed and mobile functionality also has the potential for new commercial models, including the extension of previously unitary service portfolios.

At the same time, as more traffic goes mobile, the mobile network will become increasingly important at the expense of the fixed network. For consumers, the increasing complexity of services on offer may limit their ability to assess the value of different services. Equally, it is possible that consumers uninterested in these services may be left behind as FMC and FMS trends reach the mainstream.

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[55] ACCC, *Telecommunications Market Indicator Report 2005–06*, August 2007, p.13.