Competition for long distance mobile telecommunications services

A report about declaration of a
long distance mobile originating service

January 2000

Contents

Abbreviations

ACA	Australian Communications Authority
ACIF	Australian Communications Industry Forum
Act	*Trade Practices Act 1974*
AMPS	Advanced mobile phone system (analogue wireless network technology)
CDMA	Code division multiple access (wireless network technology)
Commission	Australian Competition and Consumer Commission
GSM	Global systems for mobiles (wireless network technology)
LMDS	Local multi-point distribution system
Long-term interests of end-users	Long-term interests of end-users of carriage services or of services supplied by means of carriage services. This term is defined in s. 152AB of the Act.
MSC	Mobile services switching centre
POI	Point of interconnection
PSTN	Public switched telephone network
TAF	Telecommunications Access Forum
UMTS	Universal mobile telecommunications system (wireless network technology)

Glossary

Access provider	Carrier or carriage service provider who supplies declared services to itself or other persons — see s. 152AR of the Act.
Access seeker	Service provider who makes, or proposes to make, a request for access to a declared service under s. 152AR of the Act.
Base station system (BSS)	The function used to provide radio coverage for cells, including all aspects of maintaining the links between the mobile phones and the public mobile telecommunications network. In GSM it consists of the Base Stations and Base Station Controller.
Declared service	An eligible service declared by the Commission under s. 152AL of the Act. Once an eligible service is declared, access providers are required to supply the service to service providers (i.e. access seekers) upon request — see s. 152AR of the Act.
Eligible service	This term is defined in s. 152AL of the Act. An eligible service is a carriage service between two or more points (at least one of which is in Australia), or a service that facilitates the supply of such a carriage service.
Gateway mobile services switching centre (GMSC)	An MSC used to connect a public mobile telecommunications network to a PSTN.
Home location register (HLR)	Database for information on subscribers, such as serial number, base station number and mobile phone location.
Mobile phone or mobile station	A mobile phone or equivalent device. In the case of GSM, it includes a valid Subscriber Identity Module (SIM). The valid SIM is required to access the GSM network for all but emergency calls.

Mobile services switching centre (MSC)	Switching centre controlling a particular service area, and contains several BSSs, in order to control all the switching functions for mobile phones located in any of the cells.
Over-ride dial code	A function that enables an end-user to select a carrier for a certain type of call on a call-by-call basis.
Pre-selection	Function that enables an end-user or service provider to select a preferred carrier or carriage service provider for a certain type of call.
Roaming	The ability to achieve service in any mobile network when away from the home public mobile telecommunications network, including international service.
Service provider	Defined in s. 86 of the *Telecommunications Act 1997*. Means a carriage service provider or a content service provider.
Visitor location register (VLR)	Database for temporary storage of information on subscribers.

Section 1: Introduction

On 8 October 1998, the Australian Competition and Consumer Commission commenced a public inquiry into whether to declare under Part XIC of the *Trade Practices Act 1974*, a service which would enable service providers to supply the long distance transmission component of long distance and international calls made from mobile phones.[1] The commencement of this inquiry followed consideration of the matter at the industry level by the Telecommunications Access Forum (TAF).

Declared services are inputs which can be used by service providers to supply competitive services to end-users. Declaration means that those carriers and carriage service providers supplying the declared service to themselves or others are required to supply the service, upon request, to any service provider.

The Commission can declare a service where to do so would promote the long-term interests of end-users of carriage services or of services supplied by means of carriage services. In considering whether declaration will promote the long-term interests of end-users, the Commission must have regard to the likely impact of declaration on competition, any-to-any connectivity and economic efficiency.

Once a service is declared, a carrier or carriage service provider supplying the service to itself or another person must supply the service, upon request, to other service providers. Service providers are thus guaranteed access to the inputs they need in order to supply competitive communications services to end-users.

Terms and conditions of supply can be then set through commercial negotiation. Alternatively, they can be set by reference to the other regulatory processes which apply once a service is declared, namely, in accordance with an access undertaking accepted by the Commission, or through arbitration by the Commission in the event that it is notified of an access dispute.

To stimulate discussion and assist its consideration of these matters during the inquiry, the Commission issued a discussion paper on 14 December 1998 setting out the main issues as it saw them. In the course of this inquiry the Commission received a number of submissions from mobile carriers, service providers and interest groups. To achieve a better understanding of these proposals, the Commission consulted with industry players. It also engaged a consultant, Mr Trevor Jordan, to provide technical expertise.

During the inquiry, the Commission developed a description for the key features of the service which it describes as a 'long distance mobile originating service'. The description of this service draws heavily on proposals submitted by One.Tel Limited and AAPT Limited. It is a service for the carriage of certain 'long distance' calls from a mobile phone to a point of interconnection located at or associated with a mobile switching centre. The Commission also published a draft report setting out its proposed conclusions and reasons.

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[1] The Commission announced this decision on 8 October 1998 as an inquiry into whether to declare 'mobile to fixed' services.

As a result of information received during the inquiry, including submissions on the draft report, the Commission was not satisfied that declaration will promote the long-term interests of end-users of carriage services or of services provided by means of carriage services.

The mobile services market has experienced significant growth since 1992. Currently there are three mobile carriers, with new carriers expected to enter the market during 1999-2000. To date, it appears that competition has focused on handset prices and access charges. Information received during the inquiry indicates that competition is likely to intensify over the foreseeable future in the absence of declaration, particularly as new entrants roll out their own networks. In the light of these significant competitive developments, at this time the Commission is of the view that declaration of the long distance mobile originating service would be unlikely to lead to more vigorous competition.

This report describes the inquiry process and sets out the information, analysis and reasons upon which the Commission proposes to make its decision. It is structured as follows:

- **Section 2** outlines the access regime and relevant provisions governing the declaration process, including details of the inquiry.

- **Section 3** describes the eligible service which was considered by the Commission during the inquiry, namely the long distance mobile originating service.

- **Section 4** identifies the market that was the focus of the inquiry (namely, the mobile services market) and the Commission's views on the effectiveness of competition in this market.

- **Section 5** sets out the Commission's reasons and conclusions as to whether declaration of the long distance mobile originating service would promote the long-term interests of end-users in terms of the likely impact on competition, any-to-any connectivity and efficiency.

Section 2: Background

2.1 The statutory framework

Part XIC of the Act establishes an industry-specific regime for regulated access to telecommunications services. The regime provides for the Commission to declare services known as 'eligible services'. These services are carriage services and services between two or more points (at least one of which is in Australia) and services which facilitate the supply of such carriage services.

There is no general right of access to eligible services. The rights and obligations under Part XIC apply only in respect of those eligible services which are declared by the Commission.

The declaration decision is, in essence, a decision by the Commission to apply the rules and regulatory processes in Part XIC to the eligible services covered by the declaration. Once an eligible service is declared, carriers (and carriage service providers) who provide the service either to themselves or to other persons are, unless otherwise exempt, required to comply with standard access obligations in relation to the service. In accordance with these obligations, the carrier or carriage service provider (i.e. the access provider) must supply the service on such terms and conditions as are agreed with a service provider seeking access (i.e. the access seeker) or, failing agreement, in accordance with an access undertaking accepted by the Commission or an arbitration determination of the Commission.

The Commission can declare eligible services in one of two ways:

- in accordance with a recommendation by TAF; or
- after holding a public inquiry, if it is satisfied that making the declaration would promote the long-term interests of end-users of carriage services or services provided by means of carriage services.

2.2 The inquiry

The TAF considered a proposal to declare a service proposed by One.Tel known as a 'Routing Option Service'. The TAF was unable to reach a consensus view either to accept or reject the proposal. AAPT put forward an alternative proposal involving amendment to the current declaration of the Domestic GSM Originating Access Service. While discussed in general terms, AAPT's proposal was not, however, formally considered by the TAF. Subsequently, in accordance with its rules of governance, the TAF referred One.Tel's proposal to the Commission. At around the same time, AAPT submitted its proposal to the Commission.

On 8 October 1998 the Commission announced this public inquiry, the operation of which is governed by Part 25 of the *Telecommunications Act 1997*. On 14 December 1998 the Commission released a discussion paper outlining particular issues and calling

for submissions. (A copy of the discussion paper is available from the Commission's website at www.accc.gov.au.

Except for Telstra's submission in response to the discussion paper, all the parties who made submissions consented to the Commission making them publicly available for comment (except for a limited amount of confidential information). Telstra chose to keep its submission of 62 pages confidential, and instead made a 22 page version available for public comment. Appendix 3 sets out a list of the submissions.

During the inquiry, Commission staff undertook one-to-one discussions with Vodafone, Cable & Wireless Optus, Telstra, One.Tel and AAPT. Telstra declined to answer a number of questions put to it on the basis that the information sought was confidential. The other parties to discussions were generally helpful and willing to provide information to questions put to them. The Commission appreciated the constructive manner in which they approached these discussions.

The Commission also commissioned a Technical Report from Mr Trevor Jordan. A copy is available from the telecommunications pages of the Commission's website at www.accc.gov.au.

On 23 August 1999 the Commission published a draft of this report (the Draft Report) setting out the conclusions proposed by the Commission and its reasoning. In response, five submissions were received. A list of submissions is also at Appendix 3.

2.3. The long-term interests of end-users test

The test for declaration of the eligible services covered by the inquiry is the long-term interests of end-users test. That is, the Commission must be satisfied that making the declaration will promote the long-term interests of end-users of carriage services or of services provided by means of carriage services.

In order to determine whether declaration will promote the long-term interests of end-users, s. 152AB of the Act provides that the Commission must consider the extent to which declaration is likely to result in the achievement of the following objectives:

- the objective of promoting competition in markets for carriage services and services supplied by means of carriage services;
- for carriage services involving communication between end-users, the objective of achieving any-to-any connectivity; and
- the objective of encouraging the economically efficient use of, and economically efficient investment in, the infrastructure by which carriage services and services provided by means of carriage services are supplied.[2]

[2] Subs. 152AB(2) of the Act.

In the Commission's view these are essentially 'secondary objectives'.[3] They are not ends in themselves but are the means by which the primary objective (of promoting the long-term interests of end-users) is to be realised.

Where declaration is likely to result in the achievement of one or more of these objectives, it will generally promote the long-term interests of end-users. For instance, if declaration is likely to promote competition in a market for the supply of long distance mobile telephony services to end-users, then end-users are likely to benefit through lower prices and improved customer service. Similarly, encouraging efficient investment would be expected to promote end-users' interests through enhancing the efficiency with which telecommunications services are supplied. The enhanced efficiency would be generally reflected in lower prices. The Commission may also conclude that efficient investment will be likely to increase service diversity.

With respect to any-to-any connectivity the Commission takes the view that the achievement of this objective will generally benefit end-users through facilitating increased communication between them. Any-to-any connectivity may also facilitate competition by ensuring that, when migrating between service providers, end-users do not lose their ability to communicate with other end-users.

The approach adopted by the Commission will generally involve case-by-case analysis to form a view about the likely result of declaration on the achievement of each secondary objective. Not only does this ensure that the Commission considers the impact of declaration in terms of each objective, but it also helps it to reach a decision in terms of the overall effect on the long-terms interests of end-users where declaration is likely to have mixed effects.

The analytical process used by the Commission generally involves three steps.

- First, the Commission considers the likely result of declaration in terms of each secondary objective.
- Second, it considers whether the likely result of declaration on each secondary objective will promote the long-term interests of end-users.
- Third, it must make an overall assessment of whether, having regard to the cumulative results of declaration on the secondary objectives, declaration will promote the long-term interests of end-users.

In some cases this three stage analysis may be undertaken as discrete steps whereas in others it may be appropriate to undertake the analysis simultaneously. For instance, in considering the likely result of declaration on competition, it may be useful to consider the impact in terms of price, quality and diversity of services supplied to end-users.

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[3] Part XIC of the Act does not use the adjectives 'primary' and 'secondary' to distinguish between the objectives. However, the Commission uses them to assist in placing the competition, any-to-any connectivity and efficiency objectives within the context of the overall long-term interests of end-users objective.

To consider the likely result of declaration on a secondary objective, the Commission finds it helpful to use a 'with and without test'. That is, it considers the future without declaration and compares this to the future with declaration. This is not a test in its own right but is used to isolate the effects which are likely to occur as a result of declaration. Moreover, given that many aspects of the future will be speculative, the Commission may not be able to describe the future in a high degree of detail, or determine the full range of possible scenarios. The Commission will seek to examine those aspects of the future (primarily competition and efficiency considerations) which have a direct bearing on the issues before it.

Further details on the Commission's approach to applying the long-term interests of end-users test are set out in its publication, *Telecommunications services — Declaration provisions*, July 1999.

2.4. Overseas approaches

In February 1999, the United Kingdom Office of Telecommunications (Oftel) issued a consultative document on whether it should mandate Indirect Access (IA).[4] IA is an interconnection service for mobiles in the same way as indirect access on fixed networks is an interconnection service. The consultation followed a request that Oftel resolve a dispute (concerning a mobile network's refusal to provide indirect access) in accordance with the European Union (EU) Interconnection Directive. According to the consultative document, Oftel sought to assess where the best interests of consumers lie over the longer term.

In July 1999, Oftel concluded in its Statement on the Review of the mobile market that competition in the mobile market is growing, as reflected in the continued downward movement of the price of calls from mobile phones. In Oftel's view, the prospects for vigorous competition in the mobile sector seem encouraging; there are four flourishing mobile network operators and the auction of spectrum for third generation technology will allow at least one more competitor to enter the market.[5]

Notwithstanding these conclusions, Oftel concluded there should be an obligation to provide IA on BTCellnet and Vodafone's mobile networks (i.e. the two operators which are designated as having significant market power).[6] Oftel's initial conclusion was that IA to reduce prices was not currently justified, but that without IA choice was artificially restricted. In its July 1999 statement, Oftel confirmed its view that IA services are necessary to meet the interests of users and for the promotion of competition and of innovation. In particular, it considered that IA adds a new dimension to the packaging and tariffing of calls not available through service

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4 Oftel, *Customer choice: Oftel's review of indirect access for mobile networks*, February 1999 (published at http://www.oftel.gov.uk/ - competition/iamob299.htm).

5 Since 1983, a duopoly comprising of Vodafone and Cellnet operated until the entry of One2One in 1993 and Orange in 1994.

6 Oftel, *Oftel's review of the mobile market*, July 1999 (published at http://www.oftel.gov.uk/ - competition/mmrv799.htm).

providers. In reaching this view, Oftel indicated that retail-minus is the correct principle for charging IA services on mobile networks, and will be the principle it will apply if it is required to re-intervene should the parties not be able to reach agreement.

IA appears to differ from the service considered by the Commission in this inquiry in the following respects:

- IA applies to all calls originated by a mobile network and is exercised on a call-by-call basis (by dialling a short 'access code');

- IA allows end-users to select their preferred supplier carriage and termination services.

Whilst both IA and the service considered in this inquiry are intended to enhance competition at the retail level, the emphasis appears to differ. With IA, the emphasis appears to be on consumer choice by giving end-users access to the services of IA operators. With the service under consideration, the emphasis is in giving resellers of mobile services opportunities to contribute to the carriage and termination of certain mobile calls, thereby allowing resellers to provide a more competitive service to end-users. In addition, the Commission's test for declaration appear to be quite distinct from those that govern Oftel's consideration of this issue.

The Commission understands that in some European countries, mobile network operators are already required to provide IA to other operators. In other countries, the issue is presently under review.

Section 3: Eligible services

Eligible services are, in essence, wholesale services purchased from carriers or carriage service providers. They are input services that service providers would use to supply carriage and/ or content services to end-users and other service providers.

With public mobile telecommunications networks, wholesale services currently supplied by carriers to service providers include end-to-end services (that are re-supplied to end-users), terminating services (i.e. for terminating calls to mobile networks) and, to a limited extent, originating services. More recently, some carriers have begun developing arrangements for the supply of network roaming services (i.e. services that enable carriers to extend their area of operation by using the networks of other carriers).

3.1 Architecture of public mobile telecommunications networks

In Australia, public mobile telecommunications services are currently provided by means of four cellular networks, namely:

- an analogue AMPS network, which is owned and operated by Telstra, in the 800MHz band (which is being phased out during the course of the year 2000); and
- three digital GSM networks of Telstra, Cable & Wireless Optus and Vodafone in the 900 MHz band.

While there are some differences between each of the four public mobile telecommunications networks currently in use in Australia, the network architecture for each is broadly similar.

The geographic area covered by the network is divided into 'cells'. Within each cell is a base station consisting of a radio transmitter and a receiver. Each base station is connected to a mobile services switching centre (MSC) by cable or microwave, with each MSC serving a number of cells.

Each MSC controls the switching functions for incoming and outgoing mobile phone calls. To switch calls, an MSC refers to a database known as the visitor location register. This database temporarily stores the information necessary for all mobile phones within cells served by the MSC to make and receive calls. This information is sourced from a central database, known as the home location register (which contains the entire customer information for the network), whenever a mobile phone is in the MSC's area of coverage. The home location register contains information about the:

- identity of each subscriber;
- services each subscriber is entitled to use; and
- location of each subscriber or where the subscriber was last registered.

The MSCs are connected with other MSCs, with at least one providing the link to the fixed network as the mobile carrier's gateway switch. This is shown in Diagram 3.1.

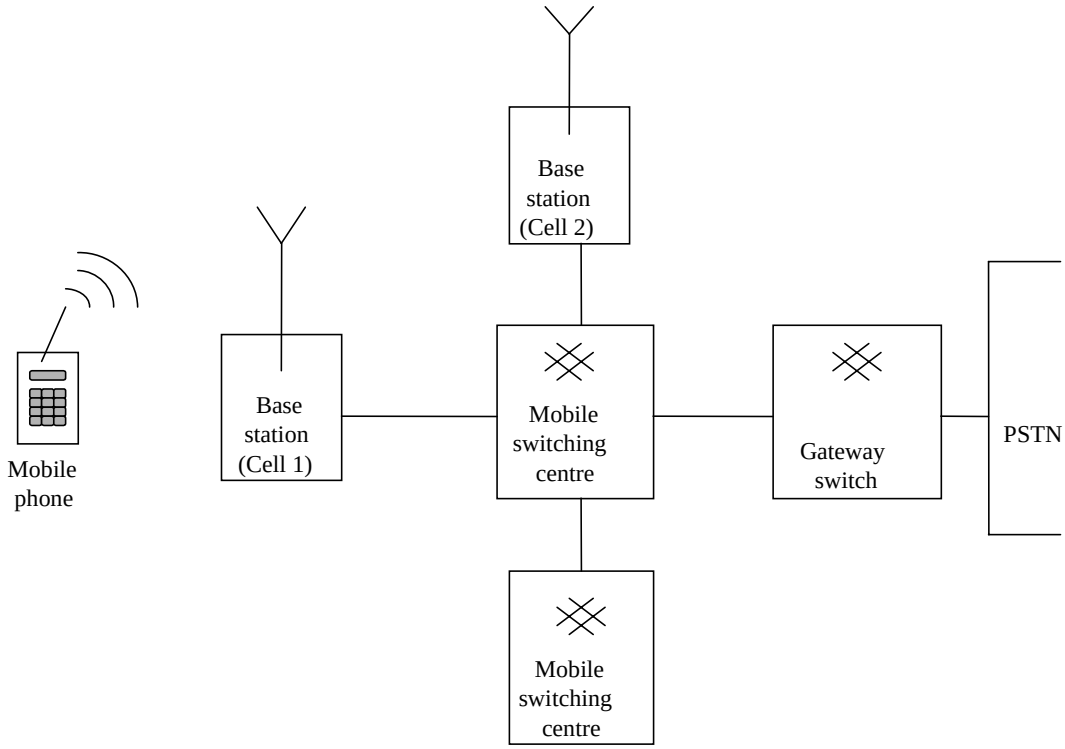

Diagram 3.1. Mobile network architecture

The Commission understands that the number of MSCs in a national network need not be large. Cable & Wireless Optus's network, for instance, has 15 MSCs.[7] In contrast, the number of base stations in a mobile network is much larger as each cell is served by its own base station. A cell can cover a relatively large geographic area in lightly populated areas, but is much smaller in densely populated areas. The architecture of mobile networks mean that an MSC can 'serve an area of any size from a single central business district to the entire Australian continent'[8]. For example, Vodafone's base stations in Hobart are served by its Melbourne MSC.

Vodafone points out that mobile networks are characterised by a different topological structure to the fixed network. Generally, mobile calls originating in regional areas are switched through State capital cities.[9] Thus a 'local' mobile call originating and

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[7] Cable & Wireless Optus submission, p. 17.

[8] Vodafone submission 1, p. 31.

[9] Vodafone submission 1, p. 21.

terminating in the same regional area would invariably be transmitted over a long distance.

3.2 Existing declarations for originating services

Originating services involve the origination of calls and carriage of the call between the calling party and a point (i.e. a point of interconnection) at which the call is handed over to another service provider responsible for carriage of the call. Under current interconnection arrangements, the point of interconnection is at a switch.

Pursuant to the legislative arrangements for ensuring a smooth transition from the previous regulatory regime to the current regime, certain originating services provided by means of GSM and AMPS networks were 'deemed' to be declared under Part XIC of the Act. These services were described in a statement published by the Commission on 30 June 1997.

In this statement, the Commission was limited to specifying services covered by access agreements registered with AUSTEL under the *Telecommunications Act 1991*. Accordingly, each originating service was described as a service to be used only for the purposes of any-to-any connectivity if the access provider has not sought or its not seeking terminating access to the end-users in question. In particular, the Commission understands that this service is intended to be used for services such as 13 or 1800 services where the called party (i.e. B-party) pays for part of the call. Mobile terminating services were also specified in this statement.

3.3 One.Tel's proposal – a routing option service

The TAF considered a proposal by One.Tel for the declaration of a 'routing option service'. Under this proposal, certain mobile calls originated by a mobile carrier would be routed to the service provider's network (or a network nominated by the service provider). The service provider would then be responsible for carriage and termination of the call.

According to service description for the One.Tel proposal, a routing option service is service for routing particular calls at a switch. It does not include call origination. One.Tel submits that it is not necessary for the service description to include call origination. One.Tel envisages that call origination will be negotiated commercially between mobile carriers and service providers.

In its proposal, as put to the TAF**,** One.Tel suggested that the routing option service could be used for:

- 'long-distance' calls to domestic fixed public switched telephone networks; and
- calls to international numbers.

During this inquiry, however, One.Tel has indicated that its proposal could be limited to international calls only. With the One.Tel proposal, the routing service would be

provided by means of public mobile telecommunications networks using GSM, AMPS and CDMA technologies, as well as cross-technology GSM-CDMA.

3.4 AAPT's proposal – a 'full' originating service

In convening this inquiry, the Commission stated that it would also consider a proposal developed by AAPT for the declaration of an originating service. This proposal involves an amendment to the current service description of Domestic GSM Originating Access so that service providers can acquire an originating access service for:

- all calls that terminate on fixed networks[10]; and
- calls to international numbers.

With AAPT's proposal, the declared service will cover both origination and routing. Therefore, it would not be necessary for a service provider to separately acquire call origination as would be the case with the One.Tel proposal.

Also, with AAPT's proposal, there is no distinction between 'long distance' mobile calls and 'local' mobile calls. In this respect, the AAPT's proposal goes beyond the scope of the matters addressed in the discussion paper for this inquiry. Relevantly, when the Commission announced its decision to hold a public inquiry, it indicated that the eligible service would 'enable service providers to provide the long distance transmission component of long distance and international calls made on mobile handsets.'[11] For the reasons set out in section 3.5, the inquiry focused on long distance calls.

3.5 Long distance mobile originating service

In the discussion paper for this inquiry, the Commission indicated that it would use the services proposed by One.Tel and AAPT as examples of the eligible service under consideration. It also indicated that it would use the inquiry to develop a description for the service. This was for two reasons. First, the service developed by One.Tel was not specified in a form that could be declared by the Commission. Second, the Commission was of the view that a number of issues should be explored before settling on a service description (for instance, should the service be technology specific as indicated by AAPT's proposal?).

The Commission has previously described the service as one that would 'enable service providers to supply the long distance transmission component of long distance and international calls made from mobile phones'.[12] In light of the Commission's

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[10] However, calls to emergency services, operator and 'other like services' would be excluded.

[11] Australian Competition and Consumer Commission media release, *Mobile to fixed telecommunications services public inquiry*, 8 October 1998.

[12] See, for instance, the Australian Competition and Consumer Commission discussion paper, p. 1.

conclusion about the impact of declaration on the long-term interests of end-users, it was not necessary to develop a comprehensive description for the service under consideration. Nevertheless, to apply that test, the Commission did develop a description of the key features of this service which it described as a 'long distance mobile originating service' and considers to be an eligible service as defined in subs. 152AL(1) of the Act.

The description for the service is based on submissions received in response to the discussion paper and draws heavily on the proposals submitted by One.Tel and AAPT (described above). The Commission has sought to develop a service that best expresses the key features of the One.Tel and AAPT proposals. This can be illustrated by reference to Diagram 3.2.

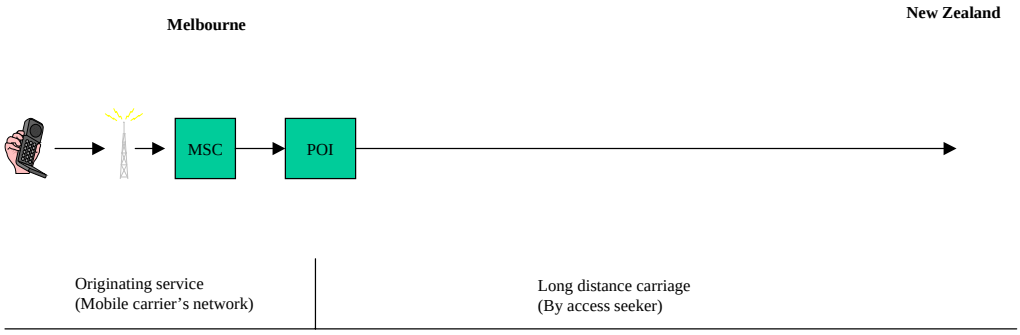

Diagram 3.2. Use of the long distance mobile originating service for calls to New Zealand

During the inquiry, it became apparent that the proposal submitted by AAPT was wider than that outlined in the discussion paper. AAPT submitted that the terms of reference for the inquiry should have been broadened to include the AAPT proposal.[13] In the Commission's view, full consideration of AAPT's proposal would have significantly altered the scope of the inquiry. Given that much of the inquiry had been conducted at that time, the Commission did not broaden the scope of the inquiry to consider declaration of an originating service for all calls.

The long distance mobile originating service is a service for the carriage of certain calls from a mobile phone to a point of interconnection (or potential point of interconnection). The point of interconnection would be located at or associated with a mobile switching centre. The mobile calls to which this service would apply are:

- calls to international numbers; and
- national 'long distance' calls to fixed public switched telephone networks.

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13 AAPT response, section 2.

The definition of national long distance calls to fixed public switched telephone networks was a contentious matter in this inquiry. Various definitions were considered (see section 5.3 of this report). In its draft report, the Commission indicated that it was inclined to accept a suggestion in the Technical Report that national long distance calls are calls which terminate in Australia at a distance more than 165 km from the MSC at which the call originates. Optus and Vodafone have expressed concerns with this approach. These concerns are outlined in greater detail in section 5.3 of this report. In light of the Commission's conclusions about the development of competition for mobile services, the Commission did not find it necessary to comprehensively define long distance calls although it did note that the definition may have an impact on the ability of carriers to efficiently route calls.

In the discussion paper, the Commission had raised the issue of whether the service should be limited to a routing service as proposed by One.Tel (i.e. with carriage provided as a separate service) or whether it should also include carriage as proposed by AAPT. The Commission has since taken the view that the service should include carriage.

Although One.Tel was confident that it would be able to negotiate carriage of mobile calls on a commercial basis with mobile carriers, the Commission is concerned that declaration of a routing service alone could be ineffective. If so, then declaration of such a service would have little, if any, effect in terms of promoting the long-term interests of end-users given that, in all cases, an access seeker could not acquire the routing service without also acquiring a carriage service from the same carrier.

Submissions in response to the discussion paper (including from One.Tel and AAPT) did not indicate an interest in the declaration of a service which could be used to supply calls made to a domestic mobile network. The Commission understands this would be problematic in the absence of arrangements to provide access seekers with B-party location information. Accordingly, the long distance mobile originating service does not cover such calls.

With respect to the networks by which the long distance mobile originating service would be provided, the Commission's preference is to describe services in terms which are as functional as possible. One way to do this is to describe services with minimal reference to the technological platforms by which it is provided. This may be appropriate where services delivered over the various technological platforms are substitutes in the one market. In such a situation, declaring a service which applies to a particular technological platform may distort investment decisions in a manner that harms the long-term interest of end-users.

The Commission understands that mobile services supplied by means of CDMA technology are likely to be substitutable for services supplied by means of GSM technology. Accordingly, the long distance mobile originating service could be provided by means of networks using either technology (or a combination of both technologies). In light of the prospective closure of the AMPS network, calls made using this network would not be included.

Section 4: Markets and competition

In considering how declaration of particular eligible services might promote the long-term interests of end-users, the Commission must consider whether declaration is likely to promote competition in markets for particular services; namely, markets for carriage services and services supplied by means of carriage services.

Declaration of an eligible service is likely to promote competition where the following conditions are present:

- the eligible service is an input that is used, or could be used, for the supply of carriage services or services provided by means of carriage services (often referred to as 'downstream services'); and

- competition in the market for the supply of the eligible service is unlikely to be effective in the future and this is likely to have a detrimental impact on competition in markets for downstream services.[14]

Where competition in the market for the supply of the eligible service is already effective (and is likely to remain effective), then declaration of the eligible service is unlikely to lead to any significant changes in quantity, price and other terms and conditions of the supply of the eligible service. On the other hand, if competition in the market for the supply of the eligible service is ineffective (and is likely to remain ineffective), then declaration of the eligible service could lead to changes in the quantity, price and other terms and conditions of the supply of the eligible service. This in turn could lead to increased competition in markets for downstream services. For instance, where the eligible service was not supplied, or was available only at a very high price, declaration could lead to improved access to the eligible service and enable more efficient competitors to enter the downstream markets, and thereby promote competition in those markets.

The Act directs the Commission's attention to the market(s) in which competition may be promoted. In most cases this is likely to be the market(s) for downstream services rather than the market in which the eligible service is supplied (where these markets are separate). That said, the Act does not prohibit the Commission considering conditions affecting supply of the eligible service where this will assist in examining the likely impact of declaration on competition in the relevant (e.g. downstream) markets.

Accordingly, in this inquiry, the Commission sought to identify the markets in which competition may be promoted as a result of declaration of the eligible services under consideration. With a view to understanding the likely impact of declaration on competition in these markets, the Commission also examined features affecting competition for supply of the eligible services; i.e. the long distance mobile originating service.

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[14] In saying this, the Commission is not intending to limit the situations in which declaration is likely to promote competition but rather, to provide an example of situations in which declaration would be expected to promote competition.

4.1. Market definition principles

Identification of the relevant markets provides the Commission with a field within which it can meaningfully analyse the effectiveness of competition with and without declaration.

Markets involve four dimensions: product, geography, function and time. The process of market definition involves identifying the sellers and buyers which effectively constrain the price and output decisions of firms supplying the service(s) under consideration.

To begin the market definition process it is necessary to identify the service under consideration and the firm(s) supplying that service. For instance, if the Commission wanted to identify the market in which the eligible service is (or would be) supplied, the market definition process would start with the access provider and its supply of the eligible service. If, instead, the Commission wanted to identify the downstream markets in which declaration may promote competition, the market definition process would start with access seekers and the downstream services that they would supply using the eligible service.

Once the relevant service and source(s) of supply have been identified, they are then described in terms of the product, geographic and functional area of supply. The market boundaries are then extended to include all other sources and potential sources of close substitutes with which the firm supplying the service would compete. In terms of s. 4E of the Act:

> ... "market" means a market in Australia and, when used in relation to any goods or services, includes a market for those goods or services and other goods or services that are substitutable for, or otherwise competitive with, the first-mentioned goods or services.

As noted by the High Court:

> This process of defining a market by substitution involves both including products which compete with the defendant's and excluding those which because of differentiating characteristics do not compete.[15]

To identify services that are 'substitutable for, or otherwise competitive with' the services under consideration, the Commission uses the 'price elevation test'. The resulting market is the smallest area over which a profit maximising monopolist could impose a small but significant and non-transitory price increase. In addition, the Commission takes account of 'commercial reality' to ensure that the market which it identifies accurately reflects the arena of competition.[16]

The availability of close substitutes (on both the demand and supply sides) constrains the ability of suppliers to profitably divert prices or quality of service from competitive

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[15] *Queensland Wire Industries Pty Ltd v. BHP Ltd* (1989) ATPR ¶40-925, p. 50, 008 per Mason CJ and Wilson J.

[16] See, for instance, paragraphs 5.49 and 5.66 of the Australian Competition and Consumer Commission merger guidelines, 1999.

levels. Generally, a greater range of substitutes points to a broader market in which individual participants have less power, and consequently competition is more effective.

In identifying relevant markets, Part XIC of the Act does not require the Commission to take a definitive stance on market definition. Furthermore, over time, declaration itself might affect the dimensions of these markets, particularly in relation to the functional dimension. Accordingly, market analysis under Part XIC should be seen in the context of shedding light on how declaration would promote competition rather than in the context of developing 'all purpose' market definitions.

4.2. Delineating market boundaries

Service providers would use the long distance mobile originating service (i.e. the eligible service) to supply downstream services to end-users. These downstream services would be long distance calls from a mobile phone.

Therefore, to consider whether declaration of the long distance mobile originating service would promote competition, the Commission sought to identify the market in which these downstream services would be supplied. To assist in the analytical process the Commission also sought to identify the market in which originating services would be supplied.

4.2.1. Long distance calls from a mobile phone

Submissions received by the Commission from the three mobile carriers (i.e. Telstra, Cable & Wireless Optus and Vodafone) and also Hutchison Telecommunications (Australia) Limited, One.Tel and AAPT all indicate broad support for the market definition adopted by the Commission in its inquiry into domestic inter-carrier roaming, namely:

> … a national market for the supply of public cellular mobile telecommunication services (PMTS) by means of either digital or analogue technology to service providers and end-users. The functional dimensions of the market are wholesale and retail.[17]

Long distance calls v other calls

Telstra, Cable & Wireless Optus, Vodafone and Hutchison submitted that it is not appropriate to define the relevant mobile market(s) in terms of call types. This is because:

- There is no clear distinction between 'short distance' (or local) mobile calls and 'long distance' mobile calls.[18]

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[17] Australian Competition and Consumer Commission, *Inquiry into domestic intercarrier roaming declaration*, March 1998, p. 9.

[18] Cable & Wireless Optus submission, p. 9, Hutchison submission, p. 7.

- Commercial realities in the supply of mobile services are such that consumers are sold a combination of services rather than a series of separate service offerings. This combination comprises a mobile handset, network access and a 'plan' which allows the caller to make and receive calls irrespective of location.

- Mobile services, whether short distance, long distance or international, are all consumed because they afford the ability to communicate with mobility. That is, the defining characteristic of customer purchasing behaviour for each call type is common.[19]

- The costs of operating a mobile network do not depend to any material extent on the type of call being carried.

- Mobile networks are characterised by a different topological structure to the fixed network. Generally, mobile calls originating in regional areas are switched through State capital cities.[20]

AAPT also did not consider that long distance mobile calls are readily capable of being defined separately from other calls.[21] One.Tel, as a working proposition, adopts the Commission's market definition in the domestic inter-carrier roaming inquiry. However, One.Tel suggested a separate 'market segment' and submitted that the long distance transmission component of long distance and international calls has distinct supply and demand characteristics from the provision of mobile services generally.[22]

The Commission also notes that 'short distance' and 'long distance' mobile calls do not appear to be substitutes in terms of demand. Moreover, the Commission notes that Cable & Wireless Optus distinguishes between 'short distance' and 'long distance' calls for the purposes of air time charges. On the other hand, Vodafone has chosen not to charge distance-based prices for its mobile services, and Telstra recently announced that new plans would no longer distinguish between short distance and long distance calls to destinations in Australia.[23]

Defining the market to include only one type of call could provide a misleading picture of the 'field of activity in which buyers and sellers interact'.[24] The Commission therefore considers that the relevant market should include all types of mobile calls. In the main, this is because mobile calls, along with monthly access and the handset (see below), form a bundle of services that consumers acquire from carriers and other

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19 Vodafone submission 1, p. 21.

20 Vodafone submission 1, p. 21.

21 AAPT submission , p. 15.

22 One.Tel submission, p. 14.

23 Telstra press release, *More MobileNet® For Your Money!*, 28 July 1999.

24 *Trade Practices Commission v Australia Meat Holdings Pty Ltd & Ors* (1988) ATPR ¶40-876, per Wilcox J, p. 49,480

service providers. By purchasing services in this way, suppliers can adjust the prices of the components to best reflect consumer preferences. Moreover, long distance calls make up a small proportion of calls from mobile phones. Focusing solely on the supply of these services may lead to the exclusion of important competitive features.

However, the Commission recognises that changes in the regulatory environment may have an effect on market definition. For instance, if (as is the case with fixed line calls) a pre-selection determination were made in respect of particular types of mobile calls, then this may lead to the development of a separate market for those types of calls.

Connection, monthly access and handset

Monthly access is the fee paid by mobile phone users each month in order to remain 'connected' to the network, i.e. so that they can make and receive calls. For the reasons set out above in relation to call types, the Commission views connection, monthly access and the handset as forming a 'cluster' or bundle of goods and services supplied by carriers and other service providers to end-users.

Pre-paid and post-paid packages

The mobile phone and call packages initially introduced by carriers and other service providers involve a relatively small up-front payment, with monthly access fees and payments for calls after they have been made. Since that time, pre-paid packages have been introduced. With these packages, the end-user pays a higher up-front fee and purchases a SIM card with call 'credits'.

It appears that pre-paid and post-paid packages are targeted at different types of end-users. For instance, pre-paid packages tend to be targeted at those end-users who are likely to 'fail' credit checks necessary for post-paid packages. That said, there is likely to be some degree of overlap. For the purposes of this inquiry, the Commission treated these end-users as representing separate but over-lapping segments of the same market.

Mobile calls v fixed calls

All the submissions received by the Commission appear to assume that fixed line calls are not a sufficiently close substitute for mobile calls. Vodafone submitted that the mobile market is defined by its core mobility feature.[25] However, it noted that where a call can be delayed or when mobility is not otherwise essential, there may be some degree of weak substitution at the periphery of the market.

Information received by the Commission in this and other inquiries suggests that, although substitution possibilities between fixed and mobile services are increasing, at this stage they appear to be supplied within separate markets.[26] In the draft report, the

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[25] Vodafone submission 1, p. 20.

[26] See, for instance, Australian Competition and Consumer Commission, *Declaration of local telecommunications services — A report on the declaration of an unconditioned local loop service, local PSTN originating and terminating services, and a local carriage service under Part XIC of the Trade Practices Act 1974*, July 1999, p. 42.

Commission concluded that the pricing of fixed services is unlikely to constrain the pricing of mobile services to such an extent that they ought to be included in the same market. Optus challenged this conclusion, asserting that fixed services are substitutable for mobile services because of the superior sound quality and generally lower prices of fixed services.[27] In support of its view, Optus cited a finding by Access Economics that the own price elasticity of mobile phones is relatively high due to fixed line substitution.

The Commission is not persuaded that the substitution possibilities between mobile and fixed services are such that the supply of fixed services should be included within the market in which mobile services are supplied. In the Commission's view, there are important differences between mobile and fixed services which limit the extent to which the pricing of fixed services constrains the pricing of mobile services.

Mobile services are not simply about enabling the end-user to make phone calls. Mobility (the ability to make calls from any geographic location) and the ability to receive calls at any geographic location are, in the Commission's view, significant features of mobile services which are not present in fixed services. The premium paid for mobile services (over fixed services) and the different pricing packages available for mobile services are further indication that fixed services are not part of a market for mobile services.

In any event, however, the Commission notes that even if it were wrong in not including fixed services within the mobile market, this would not affect the its decision for this inquiry.

Mobile technologies

The Commission considered whether the market should be limited to particular mobile technologies (for instance, AMPS and GSM). This depends on the degree to which services supplied by means of particular mobile phone networks compete with one another. Whilst there is information indicating that a network using CDMA technology will have different performance features from one using GSM technology, the Commission considers that both types of networks will provide mobile services which are close substitutes for one another.

Therefore, for the purposes of market definition, the Commission does not consider it appropriate to distinguish between the AMPS, GSM and CDMA technological platforms. Whether mobile networks using other technologies should be included will depend on issues affecting substitutability with those services as and when they are brought to the market.

Functional dimension

The Commission considered whether the market in which mobile calls are supplied to end-users should encompass only retail activities, or whether it should also include upstream activities, such as the supply of originating services by carrier to themselves and others.

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[27] Optus response, p. 11.

Most submissions did not explore this matter in detail. One.Tel appeared to suggest that the supply of wholesale services involving interconnection to mobile networks should be seen as occurring in a market separate from that in which mobile services are supplied to end-users.[28] Vodafone did not take a 'final position', while both Telstra and Cable & Wireless Optus urged the Commission to adopt the position reflected in its report on inter-carrier roaming, i.e. that both wholesale and retail activities take place within a single market (albeit at separate levels within that market).[29]

Generally, it will be appropriate to include two (or more) stages of production in the same market where there are overwhelming efficiencies of vertical integration. In such a situation, market coordination between buyers and sellers would be superseded by in-house coordination.

In some cases, the vertical structure of an industry will be indicative of the relative efficiency of market coordination vis-a-vis intra-firm coordination. The Commission notes that all three mobile carriers, including Vodafone, are vertically integrated. Telstra, in particular, has to date adopted a highly vertically integrated model, choosing to supply its GSM mobile services to end-users directly or through agents, rather than through resellers. It has, however, recently announced plans to supply CDMA mobile services to resellers.[30] As the Commission understands it, Vodafone has adopted a 'service provider model', but nevertheless also owns a subsidiary which operates as a service provider supplying mobile services directly to end-users.

The Commission also received information indicating that resellers such as One.Tel, AAPT and Hutchison account for about 15% of total mobile subscribers. The fact that these service providers can compete against vertically integrated operators appears to suggest that the efficiencies of vertical integration are not 'overwhelming'. Moreover, the Commission understands that Telstra, Cable & Wireless Optus and Vodafone supply originating and terminating mobile services to each other and other service providers.

The ability of resellers to compete effectively is, however, ultimately restricted by their dependence on mobile network operators for wholesale end-to-end services. Delineation of separate functional markets would highlight features affecting competition for the supply of wholesale end-to-end services to resellers. Moreover, it may allow for closer inspection of features affecting competition for particular wholesale services; e.g. features affecting the supply of originating and end-to-end mobile services may differ from those affecting the supply of terminating services.[31]

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[28] One.Tel submission, pp. 14 and 22.

[29] See, for instance, Cable & Wireless Optus submission, p. 9.

[30] Communications Day, *Telstra gets proactive on wholesale*, 27 July 1999.

[31] Terminating services are used for calls *to* mobile phones. In general, the mobile phone user to whom the call is made does not bear these charges (as would be the case for calls *from* a mobile phone). Consequently, features affecting competition for mobile phone subscribers may not have a direct impact on the effectiveness of competition for the supply of terminating services.

Over time, and depending on the purpose for which the market is defined, the Commission may be inclined to separate functional levels with a view to treating transactions at different functional levels as taking place within separate markets. For the present, however, the Commission has defined the market as one which incorporates both wholesale and retail activities, but notes that these activities take place at separate levels. Different competitive constraints may operate at each functional level. For instance, entry at the wholesale level (involving the purchase of spectrum and investment in a mobile network infrastructure) may be subject to different types of barriers as compared to entry at the retail level.

Geographic dimension

Submissions generally agree that the market should be viewed as national in scope.[32] This appears to reflect the national area of operation of the major suppliers and national marketing and pricing strategies. The Commission, therefore, considers that the geographic dimension is national.

4.2.2. Originating mobile services

These services involve the carriage of calls from mobile phones to a particular point within the mobile network (for instance, a mobile switching centre). Telstra, Cable & Wireless Optus and Vodafone each supply these services to themselves (i.e. intra-firm transactions). Where they are supplied to other service providers (i.e. inter-firm transactions), originating services involve the carriage of calls from mobile phones to a point at which the other service provider interconnects with the mobile network.

The current declaration for GSM and AMPS originating services suggests that, to an extent, Telstra, Cable & Wireless Optus and Vodafone supply these services to each other and other service providers. Declaration of the long distance originating mobile service may increase the extent to which originating mobile services are supplied to other service providers.

As a result of the Commission's views on functional dimension (in section 4.3.1), the supply of originating mobile services is viewed as occurring within the same market as that in which retail mobile services are supplied to end-users. They are, however, viewed as being supplied at separate functional levels.

4.2.3. Other relevant markets

The Commission considers that the market for mobile services is the main focus of the declaration inquiry. However, declaration of the long distance mobile originating service may have an effect on other markets – in particular, a market or markets for the transmission of long-distance and international calls. The Commission does not consider it necessary to fully define the boundaries of this market, but notes that declaration may have an effect on competition and/or investment decisions in relation to this market.

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[32] Cable & Wireless Optus submission, p. 8, and Vodafone submission 1, p. 18.

4.2.4. Conclusion

In summary, information received by the Commission during this inquiry suggests that the market on which it should focus is the market for the supply of public mobile telecommunications services to service providers and end-users (the 'mobile services market'). This is a national market containing distinct wholesale and retail levels. It includes mobile telecommunications services supplied by means of AMPS and GSM technologies and is likely to include those services supplied by means of CDMA technology.

In its response to the draft report, SETEL noted that it did not distinguish between mobile voice and data services.[33] The Commission is aware of predictions that mobile data services are likely to be a significant part of mobile services in the near future. If this eventuates, the boundaries of the relevant markets may well need to be revised. However, at present, the Commission has not received any evidence indicating, for instance, that mobile data services are in a different market from mobile voice services.

4.3. Competition in the mobile services market

To assess the impact of declaration on competition the Commission will generally examine the effectiveness of competition in the future without declaration. This provides the foundation for analysing the likely impact of declaration.

If competition in the relevant markets is already effective, then declaration of the eligible service is not likely to have much effect in terms of promoting further competition. In this regard the Explanatory Memorandum for the *Trade Practices Amendment (Telecommunications) Bill* 1996 states:

> It is not intended that the access regime embodied in this Part impose regulated access where existing market conditions already provide for the competitive supply of services. In considering whether a thing will promote competition, consideration will need to be given to the existing levels of competition in the markets to which the thing relates.[34]

Assessing the effectiveness of competition is not, however, a static analysis limited to a description of current conditions and behaviour. It is a dynamic analysis concerned with features affecting the competitive supply of services in the future. Nevertheless, current conditions will, in general, provide a starting point from which to consider the future effectiveness of competition.

When assessing the effectiveness of competition the Commission will tend to examine concentration levels, barriers to entry, the linkage between supply of the eligible service and the supply of downstream services, and relevant behavioural features (e.g. price changes over time, service differentiation).

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[33] SETEL response, p 4.

[34] Item 6, proposed s. 152AB.

4.3.1. Market concentration

Market share information in the context of the mobile services market is also often presented in the form of number of subscribers. According to a recent estimate, the market shares of the three carriers in June 1999 were as set out in Table 4.1.

Mobile carrier	Number of subscribers ('000)	Net monthly additions ('000)	Market share (%)
Telstra	3 380	26	52.5
Cable & Wireless Optus	1 985	30	30.8
Vodafone	1 070	35	16.6
Total	**6 435**	**91**	**100**

Table 4.1. Market shares based on number of subscribers — June 99 (source: ABN-AMRO estimates)

The information as presented in Table 4.1. above does not expressly reflect the role of resellers at the retail level of the market. Instead, it is more indicative of activity at the wholesale level involving the supply of wholesale services by carriers to themselves and to other service providers. Market shares at this level have, however, been changing over time, as is shown in Diagram 4.1.

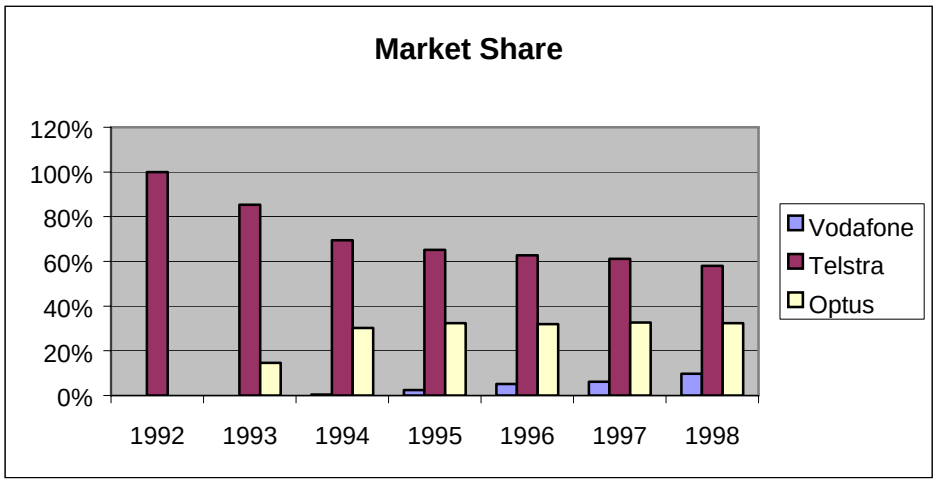

Diagram 4.1. Market shares at the wholesale level — 1992-98[35]

With a view to examining activity at the retail level, the Commission sought to calculate market shares at this level. Comprehensive retail revenue information was not available to the Commission and accordingly, it was able only to calculate approximate shares. Also, some information was commercial-in-confidence. Based on the information available, it appears that resellers hold approximately 15 per cent of the market at the retail level. It should be noted, however, that resellers depend on services supplied by each of the mobile carriers and are thus not an 'independent' source of supply. These matters are more fully explored in section 4.3.5.

The market is one in which the three main suppliers of mobile services to end-users account for approximately 85 per cent of the market at the retail level. The Commission considers that the market can be characterised as highly concentrated.[36]

High concentration levels do not necessarily mean that competition is ineffective. Where the market is characterised by low barriers to entry, incumbent firms may be constrained by the threat of entry to behave in a manner consistent with competitive market outcomes. If, however, there are significant barriers to entry and concentration levels are high, this may indicate that competition is unlikely to be effective.

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35 Vodafone submission 1, p. 12.

36 In comparison, the Commission's *Merger guidelines* (June 1999) set CR4 (i.e., the combined market share of the four largest firms) of 75% or a merged entity's market share of 25% as thresholds which warrant further consideration of a proposed merger. These thresholds have been established on the basis of the Commission's historical experience of mergers and knowledge of current market structures.

4.3.2. Barriers to entry at the wholesale level

Information received by the Commission indicates that there may be a number of features affecting entry at the wholesale level. These include:

- the need to obtain spectrum;
- the importance of national geographic coverage;
- the establishment of sites for base stations (either through establishing new sites or seeking access to existing facilities controlled by other carriers); and
- the sunk nature of certain capital costs.

Spectrum

The use of spectrum (i.e. the range of frequencies within which radiocommunications are capable of being made) is regulated under the *Radiocommunications Act 1992*. Persons intending to set up a mobile network are required to obtain spectrum licences under that Act. These are allocated by the Australian Communications Authority (ACA) by way of an auction process.

Since deregulation of the mobile services market in 1997, spectrum has been reallocated by the Commonwealth government through the ACA over a series of auctions held during 1998—99. Appendix 1 provides a summary of how this spectrum has been allocated. The Commission understands that the quantity of spectrum held by a mobile carrier within a particular area (e.g. Sydney) affects the number of customers which the carrier can serve within that area.

To date, spectrum has been allocated not only to the three incumbent mobile network operators, but also to other service providers including Hutchison, One.Tel and AAPT. Details of their plans for this spectrum are set out in section 4.3.3 (below). Allocation of spectrum typically takes between one and two years from the date of announcement of a proposed auction to the date of licensing spectrum to successful bidders.

The Commission also notes that the Commonwealth government recently announced that further spectrum in the 1.8 GHz band would be reallocated, but it would not be available until 2002. This will create opportunities for the new entrants to acquire further spectrum to expand the capacity and coverage of their networks. The Commonwealth government is also giving consideration to the auctioning of spectrum for third generation (i.e. UMTS) mobile services.

In light of these developments, the Commission considers that the lack of access to spectrum has not proven to be an absolute barrier to entry. That said, the need to acquire spectrum, and the process by which it is acquired, limit the extent to which the threat of entry can constrain the behaviour of incumbent operators (i.e. there are nevertheless significant barriers to entry). In such a situation, it is likely that actual entry is required to ensure effective competition. Actual entry would need to be of

sufficient scale; if entrants were limited to serving only a small proportion of the market, entry may be insufficient to generate effective competition.[37]

National geographic coverage

In its inquiry into inter-carrier roaming, the Commission noted the importance of national network coverage in enabling carriers to effectively compete with each other. Information received by the Commission during the current inquiry confirmed that this is still the case.

It would appear that, to provide a national mobile service to end-users, these potential entrants will depend on the mobile carriers for roaming services. This appears to be the strategy pursued by Hutchison and One.Tel. Hutchison has announced that it has entered into a Memorandum of Understanding (MOU) with Telstra for domestic roaming.[38] One.Tel has announced a MOU on GSM network roaming with Cable & Wireless Optus following a similar agreement with Telstra.[39] However, it remains to be seen whether these MOUs translate to fully operational roaming arrangements and whether they will enable entry which can 'attack the incumbents' core business' or impose 'real pressure on established firms' profits'.[40]

Establishment of new sites and sunk costs

Deployment of a mobile network involves the establishment of base stations (either on new sites or through sharing the sites of other carriers) and the installation of mobile switching centres. Transmission links between base stations and switching centres are also needed — these can be built or leased.

Setting up a mobile network requires significant investment. For instance, One.Tel's contract with Lucent Technologies to build the first stage of its national GSM network has been valued at $250 million over five years.[41] Vodafone's accumulated expenditure on plant and equipment (from 1993 to 1998) is around $1 billion.[42]

Such up-front investment can be a barrier to entry where it would not be recoverable by the entrant in the event that entry into the market is unsuccessful (i.e. where the investment expenditure is 'sunk').

Mobile network assets would appear to be highly specialised. Whilst in principle it may be possible to reallocate such assets to another market overseas, the Commission

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37 See Australian Competition and Consumer Commission, Mergers Guidelines, June 1999.

38 Communications Day, *Hutchison and Telstra partner for CDMA roaming*, 6 May 1999.

39 Communications Day, *One.Tel roaming with Optus*, 27 May 1999.

40 Professor Maureen Brunt (1992), *Australian & New Zealand Competition Law and Policy*, 19th Fordham Conference on International Antitrust Law and Policy.

41 Communications Day, *One.Tel picks Lucent GSM network*, 20 April 1999.

42 Vodafone Annual Report — financial year ending 31 March 1998, note 10 to the financial statements.

understands that a large part of the investment is involved in locating and acquiring sites suitable to set up base stations and other equipment. Investments in the mobile services market would therefore appear to involve some degree of sunk costs, although it is not clear to what extent.

Optus claims that there would be a competitive secondary market in Australia for the assets of a failed firm. According to Optus, such assets would be valuable to Optus or Vodafone in the event the firm failed.[43] Telstra put the point differently, arguing that strong growth of demand means that exit itself is unlikely and that even in the event of exit, the salvage value of any assets will be high.[44] An underlying assumption seems to be that growth in the demand for mobile services will remain high. To the extent that this assumption is borne out, the Commission accepts that this will tend to reduce barriers to entry.[45]

Vodafone submitted that in deploying a national cellular network, it is not possible to expand facilities incrementally so that they bear a reasonably close relationship to traffic volumes.[46] Because geographic coverage is a major consideration, it is necessary to establish infrastructure that will support that coverage. The investment is largely a fixed cost that is not volume sensitive. Therefore an immediate and substantial level of investment is required if the network provider is to be a national network operator.

That said, the Commission understands that, in setting up a new network, it is possible to minimise the number of base station sites by starting with relatively large 'cells' and then dividing these into smaller cells through the establishment of additional base station sites as necessitated by service take-up. Moreover, the Commission expects the Facilities Access Code to reduce costs associated with the establishment of base stations.

Also, it appears that new entrants may be able to minimise commercial risks by setting up local networks and negotiating domestic roaming arrangements with other mobile network operators. These issues are discussed above.

The Commission understands that mobile networks can be established relatively quickly. For instance, Vodafone achieved 80 per cent population coverage within three years. And, it appears that both One.Tel and AAPT will be able to roll out the first phase of their networks in under 12 months.

SETEL observed, however, that the full market impact of new entry may take some time while entrants establish an operation of sufficient scale and scope.[47] In this regard, the Commission notes that it may take several years for new operators to obtain large

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43 Optus response, pp. 17 and 18.

44 Telstra response, p. 3.

45 Market growth is discussed further below at section 4.3.4.

46 Vodafone submission 1, p. 33.

47 SETEL response, p. 5.

market shares. (For instance, Vodafone's share of 16% at the wholesale level has taken 5 years.) It would, however, expect the effects of new entry (in terms of more rivalry between suppliers) to start developing at an earlier point in time as entrants compete for subscribers.

4.3.3. Network roll out so far

Table 4.2. presents the current coverage of incumbent networks as at the time of the Commission's inquiry into inter-carrier roaming (i.e. early 1998).

Carrier	Population coverage (%)	Area coverage (%)
Telstra	94	5
Cable & Wireless Optus	~91	<5
Vodafone	~91	<5

Table 4.2. Coverage of incumbent networks (source: Telstra)

In addition, One.Tel, AAPT, Hutchison, OzPhone and Catapult Communications have each acquired spectrum.

One.Tel

One.Tel paid just under $9.5 million for spectrum licences (in the 1.8GHz range) in Sydney, Melbourne, Adelaide, Brisbane and Perth. It has announced that it is building out its GSM network in Sydney initially, followed by Melbourne. The Commission understands that One.Tel plans to build a national network with a two million subscriber capacity over the next five years and that it has entered into a $250 million contract with Lucent Technologies to build-out the first stage of its GSM network in Sydney's central business district and metropolitan areas.

One.Tel has entered into a facilities access agreement which allows it to place GSM equipment on Optus base stations. To enable it to achieve national coverage prior to rolling out a national network, One.Tel has entered into an MOU with incumbent carriers. One.Tel forecasts that its GSM network would achieve profitability during its second year of operation, with the first stage of the network expected to be up and running in January 2000.

AAPT

AAPT paid about $10.8 million for spectrum licences (in the 800 MHz range) in Brisbane, Adelaide, Perth, Dubbo, Canberra, Albury, regional Victoria, regional South Australia, Darwin and regional New South Wales. According to media reports, AAPT has shortlisted two contenders to supply its CDMA network. Notwithstanding delays in choosing a supplier, AAPT believes that its CDMA service will commence as originally planned in April 2000.

The Commission understands that, in August 1999, AAPT agreed to acquire OzPhone's spectrum (see below) for $25 million.[48]

Hutchison

Hutchison has paid around $72 million for 800 MHz spectrum covering Sydney and Melbourne. It claims that spectrum in these areas will give it access to 70 per cent of mobile demand. Samsung has been selected to install switches and network infrastructure under a contract worth $318 million. The Commission understands that Hutchison is completing work on two switching centres and rolling out base stations in Sydney and Melbourne ahead of the launch of its new CDMA-based mobile network. Hutchison plans to have its network fully operational by the second half of 2000. It has said that its Sydney switch is already live, and would be starting base station trials in July 1999.

To enable it to achieve national coverage, Hutchison has signed an MOU with Telstra that will allow users to roam on to Telstra's CDMA network. The MOU covers resale, allowing Hutchison to resell Telstra's CDMA network. Hutchison has also secured facilities access agreements with both Optus and Telstra, including co-location.

The Commission understands that Hutchison plans to continue offering GSM mobile services by reselling capacity on the national Optus network. This business accounted for more than 80 per cent of the company's revenue and some 210 000 customers.

OzPhone

OzPhone spent just under $10 million for spectrum licences (in the 800 MHz range) in Brisbane, Perth, Cairns, Mackay, Maryborough, Grafton, Tasmania, and regional Western Australia. The Commission understands that, in August 1999, OzPhone agreed to sell this spectrum to AAPT for $25 million.[49]

Catapult Communications

Catapult Communications is a US-based manufacturing company. It has paid approximately $200 000 for spectrum licences (in the 1.8GHz band) in Cairns and South Australia. Catapult Communications has yet to reveal intentions for its spectrum.

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[48] Communications Day, *AAPT snares OzPhone CDMA spectrum*, 11 August 1999.

[49] ibid.

4.3.4. Market growth

To date, the mobile services market has been characterised by relatively high growth rates. The Department of Communications, Information Technology and the Arts (DCITA) reported that market revenue for the mobile market increased by 94 per cent over three years from $1.7 billion in 1994-95 to over $3.3 billion in 1996-97.[50]

Table 4.3. sets out revenue growth experienced by the three mobile carriers over the last two financial years[51] and, Diagram 4.2. shows changes in the number of subscribers over 1992-98.

Carrier	1996—97 ($'million)	1997—98 ($'million)	Percentage increase
Telstra	1 981	2 154	8.7
Cable & Wireless Optus	1 132	1 309	15.6
Vodafone	230	350	52
Total	**3 343**	**3 813**	**14**

Table 4.3. Increase in revenue for incumbent carriers — 1996-98

[50] http://www.dcita.gov.au

[51] Based on 1996-98 Annual Reports for Telstra, Cable & Wireless Optus and Vodafone.

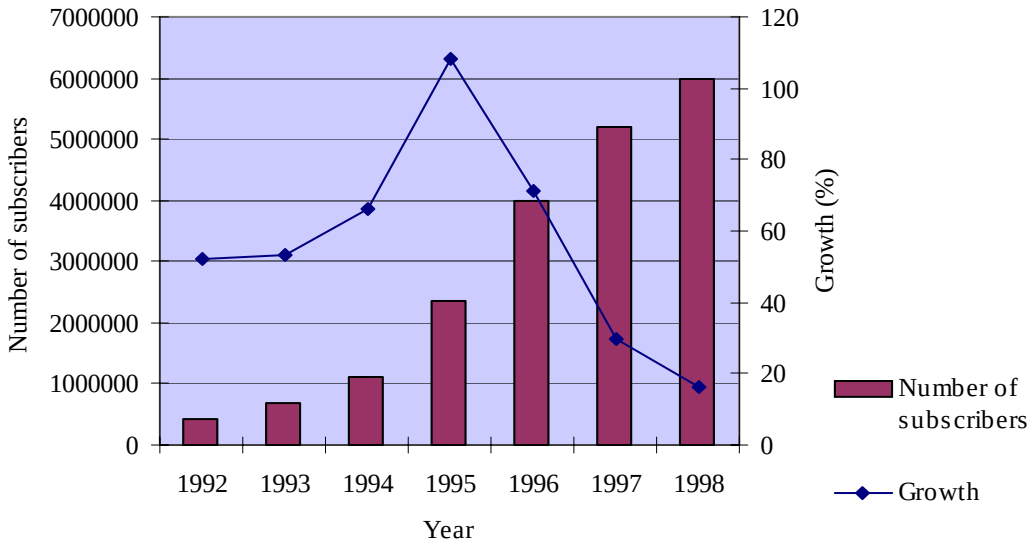

Diagram 4.2. Growth in subscriber numbers — 1992-98[52]

Where markets are growing, this tends to reduce the risks associated with investment in new infrastructure and consequently, more investment is likely to occur. In a growing market suppliers may be more easily able to charge prices that exceed costs. Once market growth slows, however, competition would be expected to intensify and lead to prices tending towards costs.

To date, market growth has been driven by increasing penetration levels (i.e. number of subscribers per population) as distinct from (say) increasing applications for mobile phones. As subscriber growth declines, overall market growth may begin to slow. According to information supplied by Telstra, mobile market growth in terms of number of subscribers since 1992 appears to have peaked in 1995, and has since progressively fallen to 16 per cent in 1998.[53]

The Commission was provided with international comparisons demonstrating that Australia has a relatively high penetration level. These are presented in Diagram 4.3.

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[52] This chart has been compiled from information provided by Telstra. See Telstra submission 2, p. 9.

[53] Telstra submission 2, p. 9 (citing Paul Budde Communication Pty Ltd, 1999). These percentages are calculated by reference to the previous year's subscriber base. This 16 per cent growth in subscriber numbers corresponds to 14 per cent revenue growth noted in Diagram 4.3.

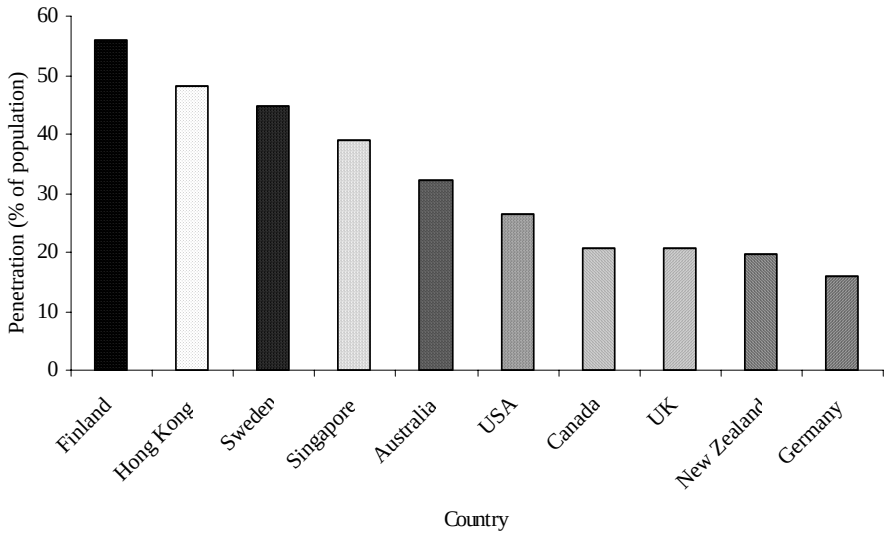

Diagram 4.3. Penetration as a proportion of population — 1998[54]

Based on the information in Diagram 4.2., it appears that the rate of growth in subscriber numbers is slowing. That said, Optus predicts that penetration figures will surge as a result of the popularity of pre-paid services.[55]

SETEL pointed out that any assessments of the rate of market growth needs to take into account not only subscriber numbers, but also the value of the services.[56] Even as growth in penetration rates for mobile services slows , the total value of mobile services may continue to expand strongly as usage increases, and as mobile data services expand. Optus predicts that, as the market moves into its second phase of growth, the marketing emphasis will shift from customer acquisition to customer retention and lower usage prices can be expected.[57]

The Commission acknowledges that the available evidence on the rate of market growth is not unequivocal, and accordingly, it is difficult to draw firm conclusions about the impact of market growth on the development of effective competition.

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54 Prepared from information in Vodafone submission 1, p. 12.

55 Optus response, p. 37.

56 SETEL response, pp. 4, 5 and 6.

57 Optus response, p. 37.

4.3.5. Barriers to entry at the retail level and vertical relationships

Mobile services tend to be supplied to end-users through both dealers (i.e. agents of the carrier) and service providers. The Commission understands that Telstra distributes its GSM mobile services to end-users exclusively through its dealers. Its AMPS mobile services are, however, also distributed through other service providers (e.g. Cable & Wireless Optus). Cable & Wireless Optus and Vodafone deliver mobile services to end-users direct and also through service providers.

These service providers essentially resell the carriers' mobile network services consisting of connection, monthly access and calls. The price paid for these services largely depends on competition between mobile carriers at the wholesale level. Service providers can source mobile phones (i.e. handsets) direct from manufacturers or through the carrier with which they deal.

It appears that existing resellers tend to have strong relationships with particular mobile carriers. The Commission understands that there are strong financial incentives for resellers and agents to maintain exclusive relationships with specific mobile carriers, although this is not universal. AAPT, for instance, is a reseller of Cable & Wireless Optus and Vodafone.

The vertical relations between mobile carriers and agents/resellers may make it more difficult for new entrants to establish their own distribution networks. On the other hand, becoming a reseller is a way of establishing a presence in the mobile services market before entry as a mobile carrier, as has been demonstrated by both One.Tel and AAPT.

4.3.6. Product differentiation

Economic theory suggests that markets with oligopolistic structures are less susceptible to coordinated conduct if there is a high degree of product differentiation. At its most basic level (without taking account of ancillary services like call waiting and message bank), mobile services are a relatively homogeneous product, although there may be some differences between networks in terms of coverage, call drop-out rate, and clarity of call.

Mobile services are supplied to end-users in the form of call plans, and these have given rise to some differentiation. Information available to the Commission indicates that a range of mobile call plans is available in the market, and these are designed to meet the specific requirements of different types of end-users, ranging from individual users who rely on mobile phones mainly to receive calls, to small businesses and large corporate customers. In some respects, these differences are largely 'financial' in nature in that they essentially involve a trade off between airtime charges and fixed monthly access fees. The wide range of call plans on offer makes it more difficult for incumbent mobile operators to reach agreement or detect deviations.

In its submission, Vodafone also points to a number of non-price variables for which competition has led to improvements. These include geographic and population coverage, network quality, higher performance handsets and value added features such

as voicemail and short message services (that are typically provided without adjustment to connection or access or call charges).

4.3.7. Pricing conduct

A competitive market can also be expected to deliver goods and services to consumers at minimum cost. In principle, prices are said to be at competitive levels where they are close to or at cost. However, as costs are not directly observable by the Commission, it has examined features affecting the effectiveness of competition within the market (above).

Mobile v fixed phone call prices

The Commission is cognisant of a general perception that the price of mobile phone calls is too high. In part, this perception tends to be based on a comparison of the price of calls from fixed and mobile phones.

For instance, One.Tel submitted:

> The substantial premium payable by mobile customers for mobile originated long distance calls over the prices paid by fixed network customers or fixed network originated calls reflect prices payable by service providers for these types of calls: that is, the premium associated with the fixed network component of mobile originated calls is captured by the underlying mobile carrier...[58]

To explore this, the Commission calculated the cost of a five minute call from fixed and mobile phones under various conditions. In undertaking this exercise, it looked at mobile call plans with the lowest airtime rates available on 22 April 1999, and compared these with the lowest airtime rates for fixed calls available on the same day.

The results of the Commission's comparisons are summarised in Appendix 2. They indicate that:

- Prices for mobile calls are higher than prices for 'equivalent' fixed calls.
- The price ratio[59] appears to be larger for international calls than for domestic long distance calls. For instance, the price ratio for a five minute residential call to New Zealand during peak periods is 3.24:1. On the other hand, the price ratio for a five minute residential call from Melbourne to Perth during peak periods is 1.68:1.
- The price ratio appears to be larger for peak calls than for offpeak (and weekend) calls. For instance, the price ratio for a five minute call to New Zealand is 3.24:1 during peak periods, but only 2.68:1 during offpeak periods. Similarly, the price ratio for a five minute residential call from Melbourne to Perth is 1.68:1 during peak periods, but only 1.24:1 during offpeak periods.

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[58] One.Tel submission, p. 11.

[59] 'Price ratio' is measured as the ratio of the price of a mobile call over the price of the 'equivalent' fixed call. For instance, the price of a 5 minute residential mobile call to the United Kingdom during peak periods is 3.84 times the price of an equivalent fixed call. Thus the price ratio of a five minute residential call to the United Kingdom during peak periods is 3.84:1.

- The price ratio appears to be larger for residential plans than for corporate plans. For instance, the price ratio for a five minute call from Melbourne to Perth is 1.68:1 for residential calls, but only 1.36:1 for corporate calls.

It is difficult to draw meaningful conclusions from the fact that prices for mobile calls are higher than prices for 'equivalent' fixed calls. The comparison focuses on airtime charges and therefore does not take account of other aspects of competition in the mobile services market such as handset prices and monthly access charges which are supplied as part of the mobile services 'package'.

While mobile and fixed networks have differing cost structures, it appears that price differences are not completely due to cost differences. In particular, the Commission notes that the price ratio is higher for international calls than for domestic long distance calls. AAPT considers that the disparity between mobile and fixed prices indicated by these price ratios understates considerably the true price disparity. According to AAPT, the price of the inter-exchange and international components of a mobile international call are significantly higher than for a fixed international call.[60]

If this is in fact generally the case, then it may suggest that competitive pressures are currently less intense with respect to international mobile calls than with respect to other types of mobile calls. In this respect, One.Tel has referred to the experience of international fixed calls and argued that there is considerable scope for the prices of international mobile calls to be reduced. If this were to occur, then One.Tel believes it would lead to an expansion in international calls. However, Optus advises that a higher proportion of mobile international calls terminate on mobile networks (for which settlement payments are higher than for fixed line termination).[61] In light of the Commission's views about the impact of new entry on competition, it did not find it necessary to test the extent to which settlement payments are higher for international mobile termination. It notes, however, that this may partially explain why there is a higher price ratio for international calls than for domestic long-distance calls.

Prices changes over time

Pursuant to the Commission's statutory responsibilities under Part XIB, Division 12 of the Act, the Commission released its report on telecommunications charges in Australia.[62] The report examined standard prices charged by Telstra between 1992 and 1998 for the majority of its price capped services. However, it was not possible to estimate the effect on prices paid by consumers resulting from discounts offered by Telstra. The report found that:

- Peak period call charges for mobile services did not change, but call charges for off-peak calls converged to the lowest rate.

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60 AAPT response, paragraph 3.1.

61 Optus response, p. 24.

62 Australian Competition and Consumer Commission, *Telecommunications Charges in Australia*, December 1998.

- Together with handset subsidies, access and free call packages are the most competitive element of the mobile services market, and are designed to attract new customers to the mobile network.

These findings were contradicted by Optus and Vodafone. In particular, Optus reported that retail prices (taking account of access fees and call charges) have fallen since 1993 by about 30%.[63] Vodafone recently commissioned a study which indicates, inter alia, that a mobile service for the average usage customer (60 minutes per month) is 65% cheaper than it was 6 years ago. According to the study, for a low user (20 minutes per month), mobile services are 83% cheaper.[64] More recently, Access Economics found that Telstra's mobile prices fell in real terms by 10.25% in 1996 and a further 6% in 1997.[65]

The Commission is cautious about drawing firm conclusions about the state of competition based on this information. The reductions in prices, whilst a benefit to end-users, may reflect falling cost structures (due to technological progress) rather than increased competition. However, if correct, the information would tend to suggest competitive activity within the market.

Pricing structure

In the draft report, the Commission found that handset prices and access charges are generally the prices of most interest to end-users when purchasing the package of mobile services. In part, this reflects the approaches adopted by service providers in marketing campaigns which tend to focus on these aspects of the mobile package. SETEL found this surprising and submitted that small businesses people are generally most interested in mobile plans that minimise overall costs, notably call charges, delivery required coverage and quality handsets.[66] SETEL also submitted that the diversity of call plans makes it difficult for small businesses to find the best plan and identify 'real' price savings.[67]

Optus offered a different perspective, suggesting that the position may differ depending on whether the end-user already has a mobile phone. It submitted that typical consumers who already purchase mobile services will be indifferent as to whether cost reductions are passed on to end-users in the form of lower fixed charges or lower call charges.[68] However, it suggested that end-users who do not have a mobile phone may not be indifferent and will prefer cost reductions to be expressed through reductions in handset prices and monthly access charges rather than a reduction in call costs. This is likely to lead to increased mobile penetration caused by lower fixed charges. The

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63 Optus response, p. 26.

64 Vodafone response, paragraph 5.3.

65 Optus response, p. 27.

66 SETEL response, p. 7.

67 SETEL response, pp. 6 and 7.

68 Optus response, p. 20.

increased penetration, to the extent that it results in an expansion in call volumes, will in turn lead to lower average costs.

In a competitive market, the Commission expects pricing structures which reflect the preferences of end-users and thus there may be a variety of structures. Such preferences may change or evolve over time as penetration rates rise and new mobile services become available.

International comparisons

The Commission's report on telecommunications charges in Australia included an international comparison of mobile services based on 'standard' business and/or residential packages sold in each country. The report found, inter alia, that:

- Australia appears to have a middle ranking for Telstra's mobile access services; but
- it appears that national long distance calls made in peak periods are generally more expensive in Australia than in other countries.

Optus expressed reservations concerning the methodology underlying the report and its findings.[69] Vodafone also disputed the finding that mobile national long distance calls made in peak periods are generally more expensive in Australia than in other countries.[70]

The Productivity Commission has recently undertaken a study comparing performance in respect of a range of Australian telecommunications services with those in other countries.[71] The prices of mobiles in Australia were benchmarked against those in Canada, Finland, France, Japan, New Zealand, Sweden, the United Kingdom and the United States as at February 1998. The report noted the following.

- For residential users, Australia is in the middle of the eight countries. Australian mobile prices for this customer segment were above Finnish prices (the lowest) by nearly 30 per cent and below New Zealand prices (the highest) by around 35 per cent. Mobile access charges in Australia were close to the average of all countries, while usage charges were relatively low.
- For small business users, and for medium to large business, Australia is ranked third because of relatively low call charges.

4.3.8. Churn

Arrangements for the supply of mobile services to end-users typically involve the end-user entering into a fixed term contract with the service provider (i.e. the mobile

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69 Optus response, p. 21.

70 Vodafone response, p. 6.

71 Productivity Commission, *International Benchmarking of Australian Telecommunications Services*, March 1999.

carrier or reseller). This contract effectively 'ties' the end-user to the service provider for a specified period, generally 12 to 24 months.

Contracts generally include a 'cancellation fee' where the end-user wishes to terminate the contract before expiry of the specified contractual term. Some service providers permit the end-user to swap from one plan to another during that time, whereas with other service providers there is a fee for doing so. The Commission understands that these tying arrangements enable service providers to recover up-front costs (e.g. handset subsidies) over a period.

In such circumstances, it is important to ensure that competition for the end-user is effective at the time the contract is made. Moreover, the end-user needs to be in a position where he/ she has sufficient information to evaluate the appropriateness of the contract. This is because the 'cancellation fee' represents a cost to the end-user switching from one service provider to another. Moreover, in switching from one service provider to another, the end-user will often need to change his/ her phone number due to the absence of mobile number portability. When mobile number portability is implemented, these switching costs are likely to be lower and thus less significant.[72]

It was suggested that both conditions (i.e. effective competition and sufficient information) exist within the mobile services market. This was said to be evidenced by 'healthy' levels of churn (i.e. disconnections from a carrier's network) — around 25 per cent.[73]

Disconnection can occur for a number of reasons (e.g. bad debt, mobile phone no longer needed, switching to a competitor). Therefore, to evaluate these submissions, the Commission sought to dissect the disconnection rate, with a view to considering what proportion of disconnection involved end-users switching from one network to another. The Commission did not, however, receive sufficient information to enable it to do so.

4.3.9. Conclusion

In the Commission's view, the mobile services market is highly concentrated with only three mobile carriers, one of which, Telstra, accounts for around half of the market. The Commission also considers that there are barriers to entry which limit the extent to which the threat of entry can constrain the behaviour of incumbents. In such a situation, actual entry is likely to be necessary to ensure effective competition.

New entry is planned or occurring in both capital city and regional locations. If entrants are successful, Australia will have at least five mobile network operators in some areas – one of the highest number of suppliers of mobile services in the world.

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[72] The Commission has recently issued a direction under s. 458 of the Telecommunications Act requiring the ACA to set out rules in the numbering plan about mobile number portability.

[73] See, for instance, Vodafone submission 1, p. 16. Optus also refers to a churn rate of 25% in its response (at p. 28).

The market has experienced considerable growth since 1992 and there exists competition between both carriers and resellers. To date, it appears that competition has been focused on handset prices and access charges. However, more recently, competitive behaviour has also focused on call charges (see section 5.1.3.).

It appears that competition is still developing. There are signs that competition is intensifying and that this is likely to continue over the foreseeable future, particularly as new suppliers enter the market.

Section 5: Declare the long distance mobile originating service?

In the previous section, the Commission examined the effectiveness of competition in the mobile services market and how it could develop in the future. It noted, in particular, the features affecting the roll out of new mobile network infrastructure. This section considers whether declaration of the long distance mobile originating service would promote the long-term interests of end-users, particularly through promoting competition in the mobile services market. It also considers whether declaration would affect the achievement of any-to-any connectivity and the economically efficient use of, and investment in, infrastructure.

5.1. Would declaration promote competition?

5.1.1. Principles

In forming a view about the likely impact of declaration on competition, the Commission must consider not only whether it would be likely to promote competition but also 'the extent' to which this would be likely to occur.[74] This suggests that the Commission ought to give greater weight to a situation where the likely effect of declaration on competition is substantial than where the effect is minor.

Competition is a process of rivalry and, therefore, it may be difficult to describe (in qualitative terms) the extent to which declaration would be likely to promote competition by simply examining its impact on that process. In many cases it will be more instructive to examine the extent to which declaration promotes competition from the perspective of end-users, i.e. to have regard to the likely results from increased competition in terms of price, quality and service diversity. This is consistent with the objective of Part XIC, and ensures that the Commission relates the competitive impact back to the test for declaration (i.e. promoting the long-term interests of end-users).

In determining the extent to which declaration is likely to promote competition the Act provides that:

> ... regard must be had to the extent to which the thing will remove obstacles to end-users of listed service gaining access to listed services.[75]

The explanatory memorandum for this provision adds:

> ... it is intended that particular regard be had to the extent to which the particular thing would enable end-users to gain access to an increased range or choice of services.[76]

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[74] Explanatory Memorandum for the Trade Practices Amendment (Telecommunications) Bill 1996 – item 6, proposed s. 152AB.

[75] Subs. 152AB(4) of the Act.

5.1.2. Impact of declaration on supply of the long distance mobile originating service

It appears that, in the absence of declaration, mobile carriers will not supply the long distance mobile originating service to other service providers. Declaration would require each carrier supplying the service to itself to supply the service to any service provider upon request.

By acquiring this service, service providers could add their own (or other) long distance transmission services to supply long distance mobile calls to end-users. Thus, service providers who do not operate a mobile network would no longer be limited to reselling end-to-end long distance mobile calls. This would provide them with greater control over their cost structure for long distance mobile calls.

Whether this is likely to promote competition depends on the degree to which competition is likely to intensify in the absence of declaration. This issue is addressed in section 5.1.3.

During the inquiry, it was claimed that the mobile carriers most likely to be affected by declaration would be those that distribute mobile services through resellers, namely Vodafone and Cable & Wireless Optus.[77] Specifically it appears that, at least initially, resellers will use the long distance mobile originating service as an alternative source of inputs used to supply their customers; i.e. rather than purchasing end-to-end calls, resellers can purchase the mobile originating service and combine it with their own long distance transmission services. They would be unlikely to seek such services from Telstra because Telstra does not use resellers.

As a result, declaration would seem to have limited direct impact on the supplier of more than 50% of mobile services at the retail level — Telstra — and thus the direct benefits, if any, from declaration would be initially concentrated among a limited group of end-users. Nevertheless, the Commission accepts that, if declaration were to lead to lower long distance call prices for these end-users, there may be flow-on benefits to other end-users.[78]

Alternatives to the long distance mobile origination service

The Commission considered whether there existed alternative means by which service providers could supply long distance calls mobile calls. If so, then declaration of the long distance mobile originating service may have little effect on competition since the alternatives could be used to achieve the same outcome.

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[76] Explanatory memorandum for the Trade Practices Amendment (Telecommunications) Bill 1996 - item 6, proposed s. 152AB.

[77] Vodafone submission 1, p. 28, and Cable & Wireless Optus, p. 35.

[78] AAPT response, paragraphs 1.1 and 5.

It was suggested that One.Tel already has the means to supply long distance mobile calls to end-users using functionally equivalent alternatives; i.e. 'through-connect' services.[79] It was claimed that One.Tel already does so using its *Call Connect* service.

The Commission understands that to use this service, end-users need to dial two numbers in order to make a long distance call. The first number consists of a sequence of 8 to 10 digits and connects the end-user to One.Tel whereupon the end-user dials a four digit over-ride dial code followed by the number of the called party. It would seem that the need to dial the two sequences of numbers adversely affects the attractiveness of this service to end-users.

Therefore, it appears that the only effective alternative to the long distance mobile originating service involves deployment of alternative customer access infrastructure. Pre-selection may provide an effective alternative; however, no pre-selection determination exists for mobile services and, the Commission understands, there are no plans to make such a determination in the foreseeable future.

Segmentation of the market and re-balancing concerns

It was suggested that declaration of a service along the lines of the long distance mobile originating service would lead to segmentation of long distance mobile calls from other mobile services, with consequent price re-balancing of services within the mobile market.

Vodafone, for instance, suggested that if call prices were to fall as a result of declaration, handset prices, monthly access charges and connection fees would increase to offset the revenue and margin loss.[80] Similarly, Cable & Wireless Optus submitted that declaration would limit pricing flexibility, in particular its ability to subsidise monthly access charges and handsets.[81] In its view, this cross-product subsidisation is pro-competitive since the mobile market is immature and it is critical to promote take up.[82] Hutchison also thought that declaration would have an impact on the diversity of pricing plans available to end-users.[83] Further, Hutchison warned that, with declaration of such a service, there may be significantly more price discrimination occurring as between metropolitan areas and rural areas.

Given that mobile services are supplied as a package, declaration which has the effect of regulating the price of one type of mobile call, may have 'price balancing' effects on other aspects of the mobile service package, particularly handset prices, if this leads to unbundling at the retail level.

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79 Vodafone submission 1, p. 23, and Cable & Wireless Optus, p. 54.

80 Vodafone submission 1, p. 25.

81 Cable & Wireless Optus submission, pp. 25—27.

82 See also Telstra submission 2, p. 18, where Telstra argued that pricing packages which subsidise handsets and fixed costs enhance efficiency by increasing penetration of mobile telephony into lower income and credit-constrained segments of the market.

83 Hutchison submission, pp 13—15.

It is not, however, clear that declaration of the long distance mobile originating service would lead to unbundling at the retail level. Service providers may simply use the service to acquire long distance mobile calls in a manner that is different from that in which they acquire short distance mobile calls and other services. They may still choose to supply a single package of mobile services to end-users, particularly if end-users prefer to get services as a single package.

National long distance and international calls currently make up only a small percentage of mobile calls. Hence, even if the declaration of the long distance mobile originating service leads to market segmentation, any price re-balancing effects may be expected to be small (although the Commission notes that it is difficult to predict the future proportion of long distance calls as call prices decline). Moreover, if as Cable & Wireless Optus believes, the present practice of subsidising access charges and handset costs leads to increased take up of services, then similar behaviour would be expected to continue in a competitive market.

A market participant which neglects to attract prospective users of mobile services is likely to suffer a reduction in its share of the market over time. In the Commission's view, the real issue is whether declaration of the long distance mobile originating service would promote more competition than is likely to occur in any event, or distort or reduce the development of effective competition in the market.

Compatibility with inter-carrier roaming

Both Cable & Wireless Optus and Vodafone raised concerns about the impact of declaration on the ability to supply roaming services to other carriers. Cable & Wireless Optus stated:

> ... consider a Cable & Wireless Optus mobile customer where certain long distance calls are routed via the Routing Service to the One.Tel network. Now suppose Cable & Wireless Optus negotiates a roaming agreement with Telstra. When the customer roams to the Telstra network, Telstra would also be required to provide the Routing Service to One.Tel for those certain mobile long distance calls the customer makes... In practice, it would be very difficult for Telstra to correctly determine where to send roaming calls if Cable & Wireless Optus has entered into agreements to supply the Routing Service to resellers. Given declaration of the Routing Service, it will make the negotiation of roaming agreements very difficult...[84]

Whether such a result would arise seems to depend on how the standard access obligations would apply in relation to supply of the long distance mobile originating service, i.e. would they require Cable & Wireless Optus, for instance, to supply the service for calls that do not use its network? The Commission did not find it necessary to form a view on this matter.

Compatibility with pre-selection

Optus noted that the Commission's draft report did not contain a direct discussion of the issue regarding the interaction of declaration with preselection.[85] In the context of mobile services, pre-selection would refer to a requirement on a mobile carrier to

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[84] Cable & Wireless Optus submission, p. 44. See also Vodafone submission 1, p. 32.

[85] Optus response, paragraph 2.26.

permit an end-user to select another service provider as the end-user's preferred service provider for certain types of calls made using a mobile phone.[86] In Optus's view, supply of the long distance mobile originating service would be inconsistent with pre-selection. Declaration of the eligible service would prevent end-users receiving the benefits of pre-selection.

To assess Optus's concerns, the Commission considered whether the implementation of pre-selection would be likely to occur in the future without declaration. In this regard, the Commission notes that the ACA is not presently considering whether to make a pre-selection determination. Also, the Commission is not aware of any recent request for the ACA to do so. As such, the Commission was not able to conclude that implementation of pre-selection would be likely in the future without declaration. Moreover, even if this were the case, it is doubtful whether declaration would necessarily prevent the implementation of pre-selection. While some methods of supplying the long distance mobile originating service may be inconsistent with pre-selection (e.g. using the caller's mobile phone number as a surrogate indicator of the designated long distance carrier[87]), this is not, however, the case for all methods of supplying the long distance mobile originating service.

5.1.3. Will the effectiveness of competition improve anyway?

While declaration can be expected to result in behaviour that is unlikely to occur in the absence of declaration (i.e. supply of the long distance mobile originating service by carriers to other service providers), will this 'promote' competition? That is, is it likely to result in more competition than is likely to occur in any event (e.g. as a result of market entry by new players)?

Some submissions suggested the market was already highly competitive.[88] It was also suggested that declaration would not further promote competition at the retail level.

Already over the past six months, there has been a number of developments indicating that competition for call charges appears to be increasing. For instance, Cable & Wireless Optus has introduced *'yes' Time* where the first 20 minutes of calls to other Cable & Wireless Optus mobile users between 8 p.m. and midnight are 'free'. Mobile carriers have also introduced per second charging, with Telstra recently announcing per second charging across all new digital pricing plans.[89]

In section 4.4, the Commission noted that market entry is occurring or planned at the wholesale level and this is likely to increase the degree of rivalry within the market. This entry can be expected to take place in the immediate or near future, and is expected to have a significant effect in terms of promoting competition. Indeed, it may

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86 See subs. 350(2) of the *Telecommunications Act 1997*.

87 Technical Report, p. 10.

88 Vodafone submission 1, p. 22. Cable & Wireless Optus, p. 9.

89 Telstra press release, *More MobileNet® For Your Money!*, 28 July 1999.

be already having an effect in anticipation of the new carriers' networks becoming operational. It remains to be seen to what extent the new entrants will cause call prices to fall. Nevertheless, in light of these developments, declaration of the long distance mobile originating service seems unlikely to lead to more vigorous competition in the mobile services market.

AAPT submitted that declaration of the long distance mobile originating service would promote competitive benefits sooner than any equivalent benefits as a result of new facilities-based entrants.[90] The Commission acknowledges that the full competitive effect of new entry may take some time to eventuate. However, it is not clear to the Commission that the competitive effects of declaration would eventuate sooner. Even if this is the case, the Commission's judgement is that the timing difference is likely to be a matter of months rather than years.

In considering the extent (if any) to which declaration is likely to promote competition, the Commission must have regard to the extent to which declaration will remove obstacles to end-users gaining access to carriage services or services provided by means of carriage services.[91] Declaration is not expected to result in end-users gaining access to a greater range of services. Rather, the benefits (if any) to end-users from declaration of the long distance mobile originating service are likely to be in the form of lower prices. Whether such benefits would arise, and their extent, is likely to depend on the cost savings that service providers could achieve through achieving greater control over the long distance transmission component of long distance calls. This matter is dealt with in section 5.3.2 where the Commission concludes that it is doubtful whether declaration would encourage greater efficient use of long distance transmission infrastructure than would be the case in the absence of declaration.

5.1.4. Materiality of any benefits

Even if declaration is likely to promote competition and lead to lower prices for long distance mobile calls, the Commission understands that these calls make up a relatively small percentage of mobile calls. Cable & Wireless Optus, in its submission, estimated that only 4.2 per cent of the mobile calls it carries are to national long distance destinations, and only 0.5 per cent are international calls.[92] Therefore, the benefits (if any) are likely to be limited. This is to be contrasted with fixed telephony services where the revenue from the supply of international and national long distance calls comprises more than 50 per cent of fixed telephony revenue (i.e. around $5 billion per annum).[93]

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90 AAPT response, paragraph 1.1.

91 Subs. 152AB(4) of the Act.

92 Cable & Wireless Optus submission, p. 24. See also Vodafone submission 1, p. 27.

93 As at 30 June 1998, revenue for the fixed local telephony services market was worth approximately $4.4 billion per annum and revenue for the fixed long distance telephony services market was worth approximately $5 billion per annum. See Australian Competition and Consumer Commission, *Declaration of Local Telecommunications Services — A report on the declaration of an*

One.Tel submits that 'the number of long distance and international calls from mobile phones has increased dramatically over the past few years'[94]. It was suggested that declaration of the long distance mobile originating service would have a dramatic effect in terms of expanding that part of the mobile services market which relates to long distance and international calls.[95] Although the Commission accepts that lower prices through increased competition can be expected to lead to an expansion in economic activity, in light of the expected competitive developments in the absence of declaration, it is of the view that declaration is unlikely to have the effect anticipated by One.Tel.

5.1.5. Conclusion

While competition in the mobile services market has developed over the past few years, there appears to be scope for further improvements. Information received during the inquiry indicates that competition is strengthening and is likely to intensify in the foreseeable future, particularly as entrants' networks are rolled out in capital cities and regional areas.

Supply of the long distance mobile originating service seems unlikely in the absence of declaration, and its supply would give resellers greater control over their cost structure. At this stage, however, in light of the expected improvements in competition, the Commission is of the view that declaration of the long distance mobile originating service is unlikely to lead to more vigorous competition.

5.2. Will declaration achieve any-to-any connectivity?

5.2.1. Principles

In addition to the impact of declaration on competition the Commission must consider whether declaration is likely to result in the achievement of the objective of any-to-any connectivity in relation to carriage services that involve communications between end-users.

Any-to-any connectivity enables end-users to communicate with each other, irrespective of the network to which they are connected. As the explanatory memorandum to the Trade Practices Amendment (Telecommunications) Bill 1996 noted, the concept of any-to-any connectivity is not always relevant in the declaration context.

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unconditioned local loop service, local PSTN originating and terminating service, and a local carriage service, July 1999.

94 One.Tel submission, p. 15.

95 In this respect, AAPT observed that its entry into the (fixed) long distance market in July 1997 with its heavily discounted tariffs effected a major, immediate and ongoing reduction in prices for all customers notwithstanding AAPT's minimal customer base. (AAPT response, paragraph 1.1.)

5.2.2. Impact of declaration

As part of its submission, Telstra raised concerns about the impact of declaration on the achievement of any-to-any connectivity. According to Telstra, declaration would detract from achieving any-to-any connectivity in two ways:[96]

- First, supply of the long distance mobile originating service will introduce additional routing analysis/switching and points of interconnection. This would reduce the rate of successful call completion and therefore reduce the ability of end-users on mobile networks to communicate with other end-users.

- Second, Telstra asserts that an access seeker is less likely than the established mobile network operators to have interconnection arrangements with the increasing number of new network operators with directly-connected customers. Therefore the access seeker will be less able to terminate calls on new networks/new number ranges from the time they come into operation. Thus there will be a 'high likelihood' that calls routed to the access seeker will fail. In this respect, Telstra cites overseas experience, in particular, that of the United Kingdom.

Apart from Telstra, other submissions did not specifically raise issues regarding any-to-any connectivity. Other submissions did, however, raise issues similar to Telstra's concerns about the impact of supply of the long distance mobile originating service on call completion rates. These issues, along with those raised by Telstra, are considered below in the section on efficient use of infrastructure (section 5.3.2.).

With respect to the second matter raised by Telstra, the Commission is not persuaded by the argument that access seekers are less likely than the established mobile network operators to have interconnection arrangements with new network operators. In the Commission's view, access seekers like One.Tel or AAPT will have substantial incentives to establish interconnection arrangements with new network operators. These incentives should ensure that the impact, if any, on any-to-any connectivity will be minimal. Access seekers who fail to establish adequate interconnection arrangements are unlikely to succeed in the marketplace. These concerns should not be overstated.

5.3. Will declaration encourage economic efficiency?

5.3.1. Principles and approach

In considering whether declaration would promote the long-term interests of end-users, subs. 152AB(2)(e) of the Act requires the Commission to have regard to the extent to which declaration is likely to encourage the economically efficient use of, and the economically efficient investment in, infrastructure.

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[96] Telstra submission 2, pp. 10—11.

In the Commission's view, the phrase 'economically efficient use of, and economically efficient investment in, ... infrastructure' refers to the economic concept of efficiency. The concept of 'efficiency' consists of three components.

- Productive efficiency. This is achieved where individual firms produce the goods and services that they offer to consumers at least cost.

- Allocative efficiency. This is achieved where the prices of resources reflect their underlying costs so that resources are then allocated to their highest valued uses (i.e. those that provide the greatest benefit relative to costs).

- Dynamic efficiency. This reflects the need for industries to make timely changes to technology and products in response to changes in consumer tastes and in productive opportunities.

It may not be always possible to promote one component of efficiency without reducing another. For instance, regulatory intervention to promote allocative efficiency may have negative implications for productive and dynamic efficiency (e.g. if it reduces incentives for efficient investment in certain infrastructure).

Competition and efficiency

Reflecting a strong relationship between competition and efficiency, the Commission's analysis of the likely impact of declaration on competition will influence its analysis of likely impacts on efficiency.

For instance, if the Commission is of the view that supply of the eligible service is not subject to effective competition, then it could conclude that declaration would be likely to result in:

- the eligible service being supplied to service providers at a price which is closer to underlying costs, resulting in a more efficient allocation of resources; and

- prevention of inefficient duplication of infrastructure used to supply the eligible service.

Declaration is, however, likely to have other impacts on efficiency, both positive and negative. For instance, while declaration may promote efficient investment in downstream markets, it may also result in costs as potential access providers comply with the standard access obligations, or discourage efficient investment in infrastructure used to supply the eligible service.

Accordingly, the Commission views the efficiency objective as requiring a specific focus on the likely impact of declaration on efficiency, with a view to examining how this is likely to affect the long-term interests of end-users.

To do this the Commission will separately analyse the impact of declaration on:

- the economically efficient use of infrastructure used to supply carriage services and services provided by means of carriage services; and

- the economically efficient investment in infrastructure used to supply carriage services and services provided by means of carriage services.

Economically efficient use of infrastructure

Where declaration is likely to promote competition in markets for carriage services or services provided by means of carriage services, the Commission's competition analysis will generally enable it to form a view about the impact of declaration on allocative efficiency. For instance, if declaration is likely to lead to competitive prices for the eligible service, it will be expected to improve allocative efficiency in the market in which the eligible service is supplied. In the language of paragraph 152AB(2)(e) of the Act, declaration will be expected to result in the more efficient use of infrastructure used to supply the eligible service.

There are likely to be costs associated with the supply of an eligible service (e.g. configuring the network, or installing systems to provide billing information to access seekers) and these costs need to be considered in deciding whether to declare the eligible service.

The Act requires the Commission to consider whether it is 'technically feasible' to supply and charge for the services, having regard to the following matters:

- whether supplying, and charging for, the services is feasible in an engineering sense (i.e. having regard to the technology that is in use or available);

- the costs involved in supplying, and charging for the services, and whether these costs are reasonable; and

- the effects or likely effects that supplying, and charging for, the services would have on the operation or performance of telecommunications networks.

In the declaration context the Commission interprets this requirement as applying to the eligible services under consideration — i.e. the long distance mobile originating service.

Where the Commission determines that it is 'technically feasible' to supply and charge for the eligible service, and it is of the view that declaration would promote competition, it will generally consider that declaration is likely to encourage the efficient use of the infrastructure used to supply the service unless this would discourage efficient investment.

Economically efficient investment in infrastructure

Efficient infrastructure investment makes an important contribution to the promotion of the long-term interests of end-users. It can lead to more efficient methods of production, fostering increased competition and lower prices, as well as enhancing the level of diversity in the goods and services available to end-users.

In considering likely impacts of declaration on investment, and their extent, the Commission is mindful that they may differ depending on the type of investment in question. Accordingly, the Commission will examine the likely impact of declaration on economically efficient investment in:

- infrastructure by which the eligible service is supplied (i.e. mobile network infrastructure); and
- infrastructure by which other carriage services, and services supplied by means of carriage services, are supplied (e.g. long distance transmission infrastructure).

5.3.2. Economically efficient use of infrastructure

Supply of the long distance mobile originating service would provide service providers with greater control over their cost structure. Where they can, or arrange for another service provider to, undertake long distance transmission more efficiently than the originating carrier, this will lead to cost savings and may encourage the economically efficient use of network infrastructure.

The extent to which declaration would encourage the economically efficient use of infrastructure is a matter on which differing views were expressed in submissions. These views related to:

- technical feasibility issues;
- routing inefficiencies that would arise with supply of the long distance mobile originating service; and
- the extent to which carriers will already have sufficient incentives to undertake long distance transmission in the most efficient manner in the absence of declaration.

Each of these matters is considered below.

Technical feasibility — technology in use or available

In considering technical feasibility issues, the approach taken by the Commission, and in the Technical Report prepared by Mr Trevor Jordan (see section 2.2 of this report), was to focus on infrastructure operated by access providers most likely to be subject to access requests: Telstra, Cable & Wireless Optus and Vodafone.

The Technical Report concluded that, using technology currently available, it is possible to supply and charge for the long distance mobile originating service. To do so would involve identifying the type of call to which the service applied and the calling party's designated long distance service provider. Information provided by the switch vendors suggests that it would be feasible for most, and possibly all, mobile

switches in use in Australia to provide the long distance mobile originating service.[97] The functionality required to provide these services is typical of the capability of a modern switching system.

Established points of interconnection have provision for recording call traffic for charging purposes. Each carrier also has a system for converting call records into call charges and for the creation of bills to other carriers. There are few technical barriers to the establishment of additional points of interconnection and the direct connection of mobile networks.

The Technical Report also concluded that the technical issues would be similar (if not identical) for all mobile services including the new CDMA networks.

Identifying long distance calls

According to the Technical Report, each MSC would determine whether a mobile call is short distance or long distance by analysing the called number.

Some submissions advanced the view that the present capacity of existing mobile networks to determine whether a particular call is short or long distance resides in the billing system and consequently, call analysis takes place only after the call has been completed.[98]

In addition, Cable & Wireless Optus submitted that to supply a service along the lines of the long distance mobile originating service would incur costs to its network in terms of:

- reconfiguration of its network in order to perform A-Party analysis on all mobile traffic to determine whether the calls would need to be routed from the MSC to the relevant switch; and

- additional MSC investment (e.g. switching software development) to provide the capacity to store and analyse information about the routing of certain types of calls.

The Technical Report drew the following conclusions (which the Commission accepts) with respect to different types of long distance mobile calls:

- National long distance mobile calls. Most mobile network operators do not have the capacity within their switches to establish separate definitions of long distance for each possible access seeker. A single definition is therefore likely to be necessary. In this regard, it may be appropriate to set out a general definition of long distance which could be applied to any network. A list of the numbers that constitute a long distance call destination would have to be maintained in the MSC for each base station it serves.

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97 Technical Report, p. 1.

98 Vodafone submission 1, p. 31. Cable & Wireless Optus submission, p. 38.

- International mobile calls. In comparison with national long distance calls, international calls are easily defined and present no particular problems. International calls can be easily identified; calls which are made with an international code (such as 0011) or in international format number would be routed to the selected service provider.

The Technical Report suggested that, in terms of billing information, the mobile carrier could provide mobile origin information to the access seeker for each call with the access seeker implementing charging and billing systems to use this information. Alternatively, the access seeker could adopt a uniform national charge with no distance distinctions.

Ability to determine the long distance service provider

The Technical Report identified a number of methods for the MSC to determine the designated long distance provider. The designated long distance carrier of a mobile service could be identified by a form of category mark or a surrogate indicator such as a service number of the mobile user. The selection of the most appropriate method of implementation would be a matter for each mobile carrier.

Submissions raised concerns about data management problems associated with the supply of a long distance mobile originating service. It was submitted that these arise partly from the need for each service provider to have its data in the MSC to identify call routing details. AAPT argued that the One.Tel proposal, based on full A-party number analysis would be complex, and result in unnecessary routing inefficiencies. AAPT considered that such analysis would require substantial modifications to existing GSM networks and involve substantial costs. Both Vodafone and AAPT were of the view that these problems could not be efficiently managed unless an Intelligent Network (IN) solution were implemented, and that implementing such an IN solution would be costly.

In light of these problems, AAPT proposes that the routing of relevant calls to an access seeker's network could be achieved in a simpler, more cost effective and technically efficient manner through the use of a 'class marking' system[99]. It asserts that this system would involve the insertion of an appropriate field in the customer database look-up tables located in each MSC's visitor location register to identify a number with a particular service provider. AAPT submits that this type of capability presently exists in the existing GSM network, and is possibly being used to identify users of pre-paid mobile services. This view was not supported by Telstra.

It appears these concerns are overstated. The Technical Report concluded that the data requirements are likely to be similar to those required in the fixed network switch to support pre-selection.

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[99] AAPT submission, p. 11.

Network capacity constraints

Some submissions indicated concern about possible capacity constraints in the mobile network as a result of declaration of a service along the lines of the long distance mobile originating service. Cable & Wireless Optus argued that the supply of a service along the lines of the long distance mobile originating service would require every call on its network to be assessed. According to Cable & Wireless Optus, this would require each MSC to refer to an external database with requirement for additional processing capacity of approximately 6 per cent per call.[100] Vodafone also expressed concerns about capacity being exhausted more quickly, but also added that considerable parts of its mobile network operate at a low rate of utilisation for a period.[101]

The Technical Report explained that changes in interconnection capacity are routine operational responses to changes in traffic levels, as a result of either traffic growth or alterations in the routing of the existing of the existing traffic. Capacity changes to accommodate supply of the long distance mobile originating service should present no particular problems. Therefore, the Commission did not see this as a problem.

Technical feasibility — supply costs

Once a service is declared, those supplying the service (i.e. access providers) are subject to standard access obligations. These obligations impose 'compliance' costs on access providers. Accordingly, the Commission is required to consider costs involved in supplying and charging for the services.

In identifying costs involved in supplying and charging for a particular eligible service, the Commission is cognisant that the Part XIC framework enacted by Parliament provides for a staged approach to access regulation. The process commences with declaration. Following declaration, terms and conditions of supply are established, either through commercial negotiation, or through Part XIC processes such as the submission of an access undertaking or the arbitration of an access dispute. In the declaration context, the Commission takes account of the direct costs necessary to comply with the standard access obligations.

The Commission sought details of the costs involved in supplying and charging for the proposed services. The submissions raised a number of concerns about the nature and size of the costs involved.

Quantitative estimates of costs

Cable & Wireless Optus provided an indirect estimate of the costs in the following way. It considered that supply of a service along the lines of the long distance mobile originating service would require additional processing capacity of about 6 percent. As Cable & Wireless Optus has 15 MSCs in its network, this is said to be equivalent to one new MSC, with a capital cost of $5 million.

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[100] Cable & Wireless Optus submission, p. 39.

[101] Vodafone submission 1, p. 33.

Vodafone did not supply information on the cost to supply and charge for the services, but believes that significant costs will be involved in implementing the declaration to ensure that there is no degradation in the operation of mobile networks. Telstra did not supply specific cost information.

The Technical Report concluded that, where the switches are capable of supporting supply of the long distance mobile originating service, the costs of implementation should be relatively small.[102] The cost of developing any necessary changes, assuming the underlying capability already exists in the switching systems should be approximately $100 000. The costs of implementing the changes in the network is in the range of $100 000 to $500 000. The Commission used this information to assess the reasonableness of costs.

The Technical Report advised that operating costs are likely to be comparable with the costs of pre-selection and interconnection of long distance calls in the fixed network.[103] The costs of charging for a service along the lines of the long distance mobile originating service are also likely to be closely comparable with those of interconnected calls in the fixed network. It also concluded that the changes required to reprogram the switches are typical of the operational changes which take place routinely in networks.

Reasonableness of costs

Once the Commission has identified and, as far as possible, quantified the costs involved in supplying and charging for the eligible service, it is necessary to consider whether they are 'reasonable'. In the Commission's view, 'reasonableness' should be evaluated from a commercial perspective. The term is a relative concept; accordingly, whether expected costs are 'reasonable' will depend on all the circumstances of each particular case.

Based on its experience to date, the Commission considers that costs are likely to be regarded as reasonable where they are not so high as to be unreasonable. They are likely to be unreasonable if there is no prospect of the costs being recovered (for example, from access seekers as part of the terms and conditions of access). In considering whether there is any prospect of costs being recovered, it may be appropriate to consider the likely demand for the service.

In the draft report, the Commission expressed the view that the likely demand for the service did not appear to be substantial. Only limited interest has been expressed in acquiring the service and it appears the service will be used, in the main, to supply long distance services to end-users connected to Cable & Wireless Optus and Vodafone networks. AAPT disagreed with this assessment, and pointed out that AAPT and

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[102] The Technical Report notes that most, and possibly all, mobile switches in Australia would be capable of providing the required functionality.

[103] Cable & Wireless Optus took a similar view, but argued that the costs would be applied across a more limited customer base. See Cable & Wireless Optus submission, p. 36.

One.Tel are major resellers which advocate declaration of the long distance mobile originating service.[104]

The cost of implementing the service appears to be small, particularly if the capability to support the service already exists in the switches of mobile networks. Where this is the case, the Commission takes the view that the costs involved in supplying and charging for the service are likely to be reasonable. If, however, the capability to support the service needs to be developed, then the cost of its implementation may be more substantial. If this is the case, there may be some doubt as to whether the costs would be recoverable. In light of the Commission's views about the likely impact of declaration ion competition, the Commission did not find it necessary to form a definite view on whether costs are likely to be reasonable.

Technical feasibility — effect on telecommunications networks

In addition to the compliance costs, there may be spill-over costs in terms of protecting network integrity. Accordingly, the Commission will consider the impact of third party access on the operation or performance of telecommunications networks.

Submissions raised concerns about supply of a service along the lines of the long distance mobile originating service leading to increased drop out of mobile calls (i.e. increased number of unsuccessful calls, delays in call completion) and adversely affect other services (e.g. call barring).

In Telstra's view, this would arise due to the additional routing analysis/ switching and points of interconnection involved in carrying a call from the called party to the calling party. Telstra asserted that the impact on network performance would be so serious that it would detract from any-to-any connectivity.[105] Vodafone was also concerned above increased call drop out which would be associated with supply of an originating service to service providers. In its view, supply of the service to service providers would make management of network congestion more difficult.

The Technical Report concluded that supply of such a service should have no more impact on call quality and network performance than the current arrangements for the preselection of long distance calls in the fixed network.[106] The overall impact would be extremely small and largely unnoticeable from the perspective of the user. The Commission is inclined to accept this advice.

Routing inefficiencies

The definition of 'long distance' calls is likely to have a significant impact on the efficient use of mobile networks. If the definition of long distance calls were based on that used by Cable & Wireless Optus in its retail price structure, then a declaration that applies to those calls would be likely to involve a degree of unnecessary routing for the

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[104] AAPT response, paragraph 7.

[105] Telstra submission 2, pp. 12—13.

[106] Technical Report, p. 23.

call. This is because, regardless of the call origin, the call would be switched through an MSC located in a capital city. Thus a call made from (say) a regional location in Victoria to (say) Melbourne, would be switched through an MSC in Melbourne and then terminated in Melbourne. Handing the call over to the service provider in Melbourne would involve unnecessary routing.

In addition, the Commission notes that a service provider will not necessarily establish points of interconnection at every MSC. If so, further inefficiencies may arise in routing the call from the originating MSC to the point of interconnection.

In the draft report, the Commission suggested that the degree of unnecessary routing could be minimised by defining the service to cover calls that terminate more than 165km from the MSC at which the call originates.[107] Both Optus and Vodafone have expressed a number of concerns with this approach:

- If a mobile call originating in Hobart and terminating on a PSTN number in Hobart is switched via an MSC located in Melbourne, the call would be classified as long distance.[108]

- As a mobile network is reconfigured over time, calls which were previously classified as 'long distance' may be reclassified as 'local' (and vice versa).[109] This in turn may have adverse impacts on mobile customers.[110]

- Customers see 'local' versus 'long distance', not in terms of MSC location or routing, but simply in terms of the location from which the call was placed and the location of the PSTN number called.[111]

The Commission notes these concerns. However, in light of its views about the likely impact of declaration on competition, the Commission did not find it necessary to form a view as to the materiality of the routing (or other) inefficiencies, if any, arising from declaration.

Incentives for efficient use of long distance transmission infrastructure

All mobile calls are routed through MSCs which, the Commission understands, are generally located in capital cities. This means that service providers are likely to have little role in the carriage and termination of calls which originate and terminate at or close to capital cities. On the other hand, where calls terminate further away from the capital cities in which the call is made, declaration would give service providers greater

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[107] Draft Report, p 52.

[108] Vodafone response, p 2.

[109] Vodafone response, p 2. Optus also emphasises the 'fluid' nature of mobile networks. (Optus response, p 15).

[110] Vodafone response, p 4.

[111] Vodafone response, p. 3.

control over their cost structures and enable them to carry the long distance component where they can do so more efficiently.

One.Tel claims:

> The effect of declaration of the proposed Service will be to introduce competitive efficiency into the wholesale of long distance and international services to the mobile market segment. That is, carriage service providers will seek to compete more effectively in the retail mobile telecommunications services sub-market by reducing their wholesale long distance and international service costs.[112]

Cable & Wireless Optus, on the other hand, submitted that there are currently three sources of demand for efficient transmission of long distance mobile calls, namely, demand from the three incumbent mobile carriers, and expects that demand will increase in the future.[113] Moreover, it claims that, if a current reseller is able to supply the long distance transmission component of mobile calls more efficiently than current network providers, the three mobile network providers would have a strong incentive to commercially negotiate and buy this component supply from the reseller. Optus argued that such incentives remain unaffected by declaration.[114]

In its response to the draft report, Optus further notes that AAPT and One.Tel do not presently own long-distance transmission infrastructure but they rent such infrastructure from Optus and Telstra.[115] Under such circumstances, Optus does not see any competitive efficiencies from giving AAPT and One.Tel access to the eligible service.

Where access seekers lease infrastructure from existing carriers as explained by Optus, there may be reduced scope for declaration to encourage the efficient use of infrastructure. That said, in the presence of economies of scale, declaration may enable access seekers to lower average costs and thereby encourage the efficient use of infrastructure.

Optus also raises an issue as to the materiality of any efficiency benefits. It claims that the long-distance component of mobile calls comprises less than 10 per cent of the costs of supplying mobile long-distance calls, and there is a general trend toward national charging independent of distance.[116] This does not, however, appear to be the case for international calls where Optus claims that the termination rates comprise a significant proportion of costs.

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[112] One.Tel submission, p. 15.

[113] Cable & Wireless Optus submission, p. 52.

[114] Cable & Wireless Optus submission, p. 3.

[115] Cable & Wireless Optus response, p. 9.

[116] Cable & Wireless Optus response, pp. 9 and 10.

AAPT submits that, in addition to productive efficiencies, 'dynamic' efficiencies would follow declaration of the long distance mobile originating service. There would also be increased efficiency to an access seeker's existing infrastructure.[117]

In the Commission's view, the claimed efficiencies may be expected to arise irrespective of whether the long distance mobile originating service is declared. Entry by new operators is expected to occur during 1999-2000 through the use of spectrum and rolling out of new networks. This enables them to obtain greater control over the costs associated with long distance and other mobile calls.

The intensification of competition expected in the foreseeable future is likely to place direct pressure on carriers to use infrastructure efficiently. It is therefore doubtful whether declaration would have any real impact in encouraging the efficient use of long distance transmission infrastructure.

5.3.3. Economically efficient investment in infrastructure used to supply the long distance mobile originating service

To examine the likely impact of declaration on the economically efficient investment in infrastructure by which the eligible service is supplied, the Commission will consider the impact of declaration on the:

- legitimate commercial interests of the access provider;
- incentives for investment in the existing infrastructure used to supply the eligible service (i.e. mobile network infrastructure); and
- incentives for investment in new infrastructure which could be used to supply the eligible service.

Legitimate commercial interests of access providers

The Act requires the Commission to consider the legitimate interests of potential access providers. It will be concerned to examine whether access can be provided while maintaining the legitimate commercial interests of the access provider. Where this is not possible, declaration is likely to have an adverse impact on incentives for economically efficient investment in infrastructure.

The concept 'legitimate commercial interests' of the access provider has a number of dimensions. For instance, it covers the provider's interest in earning a commercial return on its investment, its interest in maintaining contractual commitments and its interest in using the network for future requirements.

The legitimate commercial interests of access providers include their ability to exploit economies of scale and scope.[118] Economies of scale arise from a production process in which the average (or per unit) cost of production decreases as the firm's output

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[117] AAPT response, paragraph 8.

[118] Paragraph 152AB(6)(b) of the Act.

increases. Economies of scope arise from a production process in which it is less costly in total for one firm to produce two (or more) products than it is for two (or more) firms to each produce separate products.

Cable & Wireless Optus raised concerns that declaration would deny its legitimate commercial interest in earning a reasonable rate of return on investment. It argued that revenues from long distance and international services contribute to the reasonable rate of return to which network operators are entitled.[119] Vodafone makes the point that it has made significant long-term investment, reasonably anticipating that this investment will be profitable.

In the Commission's view, access prices could be struck which enable the access provider to earn a normal commercial return on investment. While there may be some practical difficulties in determining legitimate costs and a return on capital (see ***Incentives for investment in new infrastructure*** below), these difficulties should not prevent access providers and access seekers reaching agreements that enable the access provider to earn a normal commercial return.

Telstra expressed concerns that declaration would reduce economies of scale and scope to the extent that carrier choice about how to carry long distance traffic is reduced.[120] Cable & Wireless Optus also expressed similar concerns.[121] The Commission acknowledges these concerns. If, however, the effects are likely to be significant, the mobile carriers will have strong incentives to ensure that they carry long distance calls at a cost that is lower than for the alternatives available to service providers. Whether the effects claimed by Telstra and Cable & Wireless Optus are likely to be significant is, however, questionable. At this stage, it seems that only a small proportion of calls would be subject to the service, although this may change in the future.

The Commission has not received any submissions indicating that declaration would prejudice an access provider's interest in meeting contractual commitments.

Incentives for investment in existing infrastructure

While declaration will not have an impact on the initial investment in the infrastructure, it may distort the provider's maintenance, improvement and expansion decisions leading to inefficient investment which harms the long-term interests of end-users. Accordingly, the Act requires the Commission to consider the impact of declaration on the incentives for investment in 'the infrastructure by which the services are supplied'.[122]

The incumbent mobile carriers submitted that declaration of any of the proposed services would lead to reduced incentives to invest in their respective mobile networks.

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[119] Cable & Wireless Optus submission, p. 45. See also Vodafone submission 1, p. 33.

[120] Telstra submission 2, p. 16.

[121] Cable & Wireless Optus submission, p. 45.

[122] Paragraph 152AB(6)(c) of the Act.

In particular, Cable & Wireless Optus argued that the incentives to further extend its network would be reduced if it were deprived of long distance and international revenues.[123] Telstra expressed similar concerns that the additional costs imposed by declaration could create significant disincentives for further investment in its network.[124]

The Commission acknowledges these concerns but notes that the long distance mobile originating service applies only to a small proportion of calls made from mobile phones (although this may change in the future). Moreover, access prices would be expected to be set according to pricing principles which take into account an access provider's incentives to undertake economically efficient investment. Also, the Commission considers it unlikely that carriers would refrain from upgrading their networks in a competitive environment where the market is growing.

Incentives for investment in new infrastructure

In addition to considering the impact of declaration on incentives for additional investment in existing mobile networks, the Commission will generally also consider the impact of declaration on investment in new infrastructure (i.e. new mobile networks).

Cable & Wireless Optus submitted that new entrants are likely to be discouraged from investing in mobile infrastructure if they are unable to benefit from long distance, international and other mobile revenues, and are saddled with the obligation to provide an originating service to competitors.[125]

Vodafone also cautioned that declaration could influence the buy/build decisions of new entrants and shift the commercial emphasis from the provision of network services to the provision of access regime-based services.[126] According to Vodafone, resellers presently have an incentive to establish their own mobile networks in order to avoid having to pay network operators for supplying wholesale mobile services. However, changes to the access regime will significantly alter existing incentives.[127]

Vodafone appears to be concerned about the measurement problems regulators would face in quantifying legitimate costs. Specifically, it submits it would be problematic to determine the appropriate cost of capital and depreciation charges in the face of considerable uncertainty regarding demand and technological progress which affects the value of network infrastructure. In its view, regulators will need to exercise a high degree of business judgement in quantifying legitimate costs and there is a significant risk that the regulator would 'get it wrong' and consequently set a price that is 'too

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123 Cable & Wireless Optus submission, p. 46. See also Vodafone submission 1, p. 34.

124 Telstra submission 2, p. 17.

125 Cable & Wireless Optus submission, p. 46.

126 Vodafone submission 1, p. 34. See also Cable & Wireless Optus submission, p. 47.

127 See also Cable & Wireless Optus submission, p. 31.

low'. As a result, the risk premium that investors factor into investment decisions would increase. The end result would be less investment.

One.Tel, on the other hand, submits that its decision to invest in its own mobile network is indicative that declaration is unlikely to discourage investment in distribution networks.[128]

The Commission is cognisant of the concerns raised by Vodafone and acknowledges that, in some circumstances, declaration can have adverse consequences for economically efficient investment by creating undue uncertainty about the access price that would be set by the Commission in arbitrating an access dispute. As noted by Vodafone, this is likely to be made more difficult where markets are subject to rapid innovation and technological change. In this environment, declaration of the long distance mobile originating service may increase commercial risks and adversely affect investment decisions.

In the context of this inquiry the concerns are, perhaps, overstated. The service being considered by the Commission would, it appears, be used to supply only a small proportion of mobile calls (although, this may change in the future). Also, the extent of these concerns would be influenced by the pricing approach used by the Commission. The Commission has not, however, reached a view as to the appropriate pricing approach if the long distance mobile originating service were declared.[129]

5.3.4. Economically efficient investment in infrastructure used to supply other services

Declaration may also facilitate efficient investment in infrastructure used to supply services other than the eligible services in question, and thus promote the long-term interests of end-users. Investment in this infrastructure may have been previously 'locked up' and accordingly, the Commission will consider the impact of declaration on investment in infrastructure used to supply other communications carriage services, or services provided by means of communications carriage services.

One.Tel submitted that unbundling the long distance component of mobile calls can be expected to stimulate the existing competitive market for long distance and international transmission of calls.[130] Relevant issues in this regard have been considered above (see ***Incentives for efficient use of long distance transmission infrastructure*** above).

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[128] One.Tel submission, p. 15.

[129] The Commission is currently considering pricing issues in arbitrating disputes about the supply of originating and terminating GSM services.

[130] One.Tel submission, pp. 13—14.

5.3.5. Conclusion

In considering whether declaration is likely to encourage the efficient use of infrastructure, the Commission notes that the intensification of competition expected to occur in the foreseeable future in the absence of declaration is likely to place direct pressure on carriers to use infrastructure efficiently. It is doubtful whether declaration is likely to have any real impact on the encouragement of efficient use of long distance transmission infrastructure. The Commission notes concerns about the impact of declaration on the ability of carriers to route calls in the most efficient manner. However, in light of its views about the impact of declaration on competition, the Commission did not find it necessary to form a view about the materiality of any inefficiencies.

The Commission appreciates concerns that declaration may deter efficient investment in existing and new infrastructure through creating uncertainty as to the income network operators can earn from their investments. It notes, however, that the long distance mobile originating service would, at least initially, only apply to a small proportion of calls made from mobile phones and, accordingly, any impact is likely to be small. While it is possible to further ameliorate the impact through a particular pricing approach that the Commission could adopt (were it to declare the long distance mobile originating service), the Commission did not need to form a view as to the appropriate pricing approach.

5.4. Conclusion

The mobile services market has experienced considerable growth since 1992. Currently, there are three mobile carriers, with new carriers expected to enter the market during 1999-2000. To date, it appears that competition has been focused on handset prices and access charges. Information received during the inquiry indicates that competition is likely to intensify in the foreseeable future, particularly as new entrants roll out their own networks.

In the light of these significant competitive developments the Commission is of the view that declaration of the long distance mobile originating service would be unlikely to lead to more vigorous competition. Therefore, it is not satisfied that declaration would promote the long-term interests of end-users.

Concerns were raised about service providers not being able to arrange for the termination of calls. It was suggested that declaration would therefore detract from the ability of end-users to communicate with each other (i.e. any-to-any connectivity). The Commission was not persuaded by arguments in this regard.

Declaration would provide service providers with greater control over the costs associated with long distance mobile calls, although it is not the only means by which service providers can do this. Moreover, in light of increased competition in any event, it is doubtful whether declaration would encourage the efficient use of long distance transmission infrastructure.

Considerable concerns were raised about the impact of declaration on economically efficient investment in infrastructure. It was suggested that declaration would harm

investment incentives with consequent detriment to the interests of end-users over the long-term. The Commission appreciated these concerns; however it should be noted that the long distance mobile originating service would, at least initially, apply only to a small proportion of calls made from mobile phones and, accordingly, any impact is likely to be small. While it is possible to further ameliorate the impact through a particular pricing approach that the Commission could adopt (were it to declare the long distance mobile originating service), the Commission did not need to form a view as to the appropriate pricing approach.

It should be noted that this decision is about the declaration of an originating service. The Commission notes that terminating services are declared and continue to be subject to the full provisions of the telecommunications access regime in Part XIC of the Act.

Appendix 1. Spectrum allocation for mobile services

In Australia, the *Radiocommunications Act 1992* regulates the use of spectrum, (i.e., the range of frequencies within which radiocommunications are capable of being made) through spectrum licences. Therefore a person intending to set up a mobile network will need to obtain spectrum licences. These are allocated by the ACA by auction. Radio frequency bands are allocated as spectrum lots which can be aggregated through the allocation process to form spectrum licences. Each spectrum licence is a tradeable, technology neutral spectrum access right for a fixed non-renewable term of up to 15 years. Spectrum licences authorise the use of spectrum space and give licensees the freedom to deploy any device within their spectrum space.

Reallocation of spectrum in the 800MHz and 1.8GHz bands

The ACA has divided Australia into 21 areas. These are classified into one of three types:

- metropolitan (Adelaide, Brisbane, Melbourne, Perth and Sydney);
- regional (including Canberra, Darwin and Hobart, plus rural areas); or
- outback (thinly populated remote areas on the Australian mainland).

Spectrum used for mobile communications services generally lie in two bands: 800 MHz and 1.8 GHz. In July 1997, the Australian Government decided to reallocate spectrum in the 800 MHz and 1.8 GHz bands by an auction for spectrum licences. 20 MHz of paired spectrum would be available in the 800 MHz band. In the 1.8 GHz band, it was originally proposed that a total of 75 MHz of paired spectrum be allocated. However, representations made by incumbent fixed link operators led to a revised recommendation by the ACA that only 45 MHz of paired spectrum be allocated in metropolitan areas and 15 MHz be allocated in regional areas.

Spectrum in these bands were divided into 230 lots and allocated in three stages:

- 211 lots were successfully allocated in the first spectrum auction conducted from April to May of 1998. In the 800 MHz band, the ACA had offered four parcels in metropolitan areas and three parcels in regional and outback areas. In the 1.8 GHz band, the ACA had offered 18 parcels in metropolitan areas and six parcels in regional areas. In addition to the three mobile carriers, successful applicants included Hutchison, AAPT, Catapult Communications and OzPhone.
- The 19 lots unallocated in the first auction were again offered in a second spectrum auction held on 15 September 1998. One.Tel obtained its first spectrum licences while Telstra, Vodafone, Hutchison and OzPhone added to licences they were awarded in the first spectrum auction.
- Following a third spectrum auction in May 1999, Hutchison was allocated a lot in the 800 MHz bands covering central Australia. This last auction concluded the allocation of the 230 spectrum licences which the government had decided to reallocate.

It should be noted that Telstra, Optus and Vodafone also presently pay annual licence fees for using spectrum in the 900MHz range. These were acquired before deregulation of the mobile services market in 1997. As the Commission understands it, there are presently no plans to have spectrum in the 900MHz range reallocated in an auction.

Reallocation of other spectrum

In addition to spectrum in the 800 MHz and 1.8 GHz bands which are ideally suited to mobile communications services, spectrum in the 28 and 31 GHz bands were also allocated to AAPT in February 1999. The Commission understands that AAPT plans to use spectrum in this band for Local Multipoint Distribution Services (LMDS) which is a broadband wireless service.

Future developments

Following the success of the auctions in 1998 and evidence of further current demand for spectrum, the Commonwealth government announced on 9 June 1999 that the remaining 30 MHz of paired spectrum in the 1.8 GHz band would be auctioned in early 2000. However, consistent with a commitment given in 1997, the reallocation would not occur until 2002. Successful applications would need to negotiate with incumbent licensees to seek earlier access to the spectrum.

On 27 July 1999, the ACA announced its draft recommendation to the government to make two spectrum re-allocation declarations. The first of the draft spectrum re-allocation declarations relates to the 1755-1785/1850-1880 MHz bands in five metropolitan areas: Brisbane, Sydney, Melbourne, Adelaide and Perth. This spectrum can support a range of services including GSM and wireless local loop services. The second draft spectrum re-allocation declaration relates to the 830-835/875-880 MHz (analogue) bands in regional areas.

An announcement made by the Minister for Communications, Information Technology and the Arts, on 28 September 1999 confirmed the re-allocation of the remaining 2x30 MHz of 1.8 GHz spectrum in metropolitan areas, clearing the way for an auction of spectrum licences in early 2000. On 27 October 1999, the Minister announced the Government's decision to set limits on the auction of spectrum in the 1.8 GHz band. The limits specify that no person or group will be able to hold more than 2 x 20 MHz of the total 2 x 75 MHz spectrum in the 1.8 GHz band.

Third generation systems (IMT-2000)

IMT-2000 is a third generation system designed to provide a wide range of services such as high quality voice and high-speed data services. It is intended that IMT-2000 will operate across many different networks and environments (e.g. fixed, mobile and satellite) using globally accepted standards. IMT-2000 is currently being developed by ITU. UMTS is being developed by ETSI and planned as a member of the IMTU-2000.

Spectrum planning for the deployment of IMTU-2000 in Australia is at a preliminary stage. A working group is currently examining a wide range of spectrum implementation issues associated with the proposed deployment of IMTU-2000

including the amount, mechanism and timing of spectrum allocations [131]. The working group expects to prepare an interim report by October 1999 and a final report, if necessary, by the end of March 2000.

[131] In 1998, the working group recommended that spectrum for IMT-2000 services should be made available in Australia by 2002. (See Australian Communications Authority, *Spectrum Demand for New Telecommunications Services - final report* (March 1998).

Appendix 2. Comparative airtime charges

During the inquiry, the Commission undertook a study to compare prices for long distance calls from fixed and mobile phones. The study was undertaken to explore the general perception that the price for mobile services is too high. The results are set out in Tables A2.1. and A2.2.

The comparison is based on the cost of a five minute call from fixed and mobile phones under various conditions. In undertaking this exercise, the Commission looked at mobile call plans with the lowest airtime rates available on 22 April 1999, and compared these with the lowest airtime rates for fixed calls available on the same day.

The price structure of mobile services and long distance and international fixed calls often include flag fall charges as well as air time charges. To take account of these two charging components, the price comparison was made on the basis of a 5 minute call. The shorter the call duration, the greater is the effect of flag fall charges on the overall price of the call. The longer the call duration, the greater is the effect of air-time charges on the overall price of the call. A call duration of five minutes was judged to give appropriate weight to the two charging components.

The following should be noted.

Mobile long distance calls.

In this analysis, mobile plans are divided into corporate and residential plans. Residential plans are defined as plans which have a minimum monthly charge of $30 or less. The plan meeting these criteria and having the lowest airtime charge is used in this analysis. Corporate plans are not restricted by limits on the minimum monthly charge. Plans which have the lowest airtime charge are used in this analysis. It should be noted that corporate plans may involve the end-users contracting to use multiple lines — e.g. having up to 10 handsets.

Fixed long distance calls.

The service providers considered were Telstra, Cable & Wireless Optus, WorldxChange, One.Tel, Hutchison and AAPT. (Vodafone does not supply fixed long distance services.) The lowest airtime charges for fixed long distance calls are used in this analysis.

- Service providers generally distinguish between business and non-business plans. It is possible that tailor-made corporate plans are available, but these are not published widely. Therefore for the purposes of this analysis, rates for business plans are used for corporate calls.

- Telstra has four categories based on the time of the day — morning, afternoon, night and weekend. There appears to be no difference in the rates for nights and weekends (at least for the specific calls looked at in this analysis). For the purposes of this analysis, morning is taken as the peak rate. Night/weekend is taken as the offpeak rate. The afternoon category is ignored in this analysis.

	Fixed call (a)	Mobile call (b)	Price ratio (b)/(a)		Fixed call (a)	Mobile call (b)	Price ratio (b)/(a)
National long distance calls							
Corporate				***Residential***			
5 minute call from Melbourne to Sydney – peak	1.25 (Cable & Wireless Optus Long Distance)	1.7 (AAPT Corporate Plan)	1.36	5 minute call from Melbourne to Sydney – peak	1.25 (One.Tel)	2.1 (Vodafone Contact 30)	1.68
5 minute call from Melbourne to Sydney – offpeak	0.76 (Telstra STD)	0.85 (AAPT Corporate Plan)	1.12	5 minute call from Melbourne to Sydney – offpeak	0.76 (Telstra STD)	1.05 (Vodafone Contact 30)	1.38
5 minute call from Melbourne to Sydney – weekend	0.76 (Telstra STD)	0.85 (AAPT Corporate Plan)	1.12	5 minute call from Melbourne to Sydney – weekend	0.6 (One.Tel)	1.05 (Vodafone Contact 30)	1.75
5 minute call from Melbourne to Perth – peak	1.25 (Cable & Wireless Optus Long Distance)	1.7 (AAPT Corporate Plan)	1.36	5 minute call from Melbourne to Perth – peak	1.25 (One.Tel)	2.1 (Vodafone Contact 30)	1.68
5 minute call from Melbourne to Perth – offpeak	0.85 (Telstra STD)	0.85 (AAPT Corporate Plan)	1	5 minute call from Melbourne to Perth – offpeak	0.85 (Telstra STD)	1.05 (Vodafone Contact 30)	1.24
5 minute call from Melbourne to Perth – weekend	0.85 (Telstra STD)	0.85 (AAPT Corporate Plan)	1	5 minute call from Melbourne to Perth – weekend	0.6 (One.Tel)	1.05 (Vodafone Contact 30)	1.75

Table A2.1. Comparative pricing of fixed and mobile calls — national long distance

International calls	Fixed call (a)	Mobile call (b)	Price ratio (b)/(a)
5 minute call to the United Kingdom – peak	1.25 (WorldxChange)	4.8 (Telstra)	3.84
5 minute call to the United Kingdom – offpeak	1.25 (WorldxChange)	4.2 (Cable & Wireless Optus)	3.36
5 minute call to the United Kingdom – weekend	1.25 (WorldxChange)	2.25 (Cable & Wireless Optus)	1.8
5 minute call to New Zealand – peak	1.25 (WorldxChange)	4.05 (Telstra)	3.24
5 minute call to New Zealand – offpeak	1.25 (WorldxChange)	3.35 (Cable & Wireless Optus)	2.68
5 minute call to New Zealand – weekend	1.25 (WorldxChange)	2.1 (Cable & Wireless Optus)	1.68

A2.2. Comparative pricing of fixed and mobile calls — international

Appendix 3. Submissions

Responses to discussion paper

Organisation	Date received
AAPT Ltd	9 February 1999
Australian Telecommunications Users Group Ltd	29 January 1999
Cable & Wireless Optus Ltd	8 March 1999
One.Tel Limited	16 February 1999
Small Enterprise Telecommunications Centre Ltd	18 February 1999
Hutchison Telecommunications (Australia) Ltd	4 May 1999
Telstra Corporation Ltd	
Submission 1 (Confidential)	March 1999
Submission 2	March 1999
Submission 3	May 1999
Vodafone Network Pty Ltd	
Submission 1	17 Feb 1999
Submission 2	25 June 1999

Responses to draft report

Organisation	Date received
AAPT Ltd	1 October 1999
Cable & Wireless Optus Ltd	1 October 1999
Small Enterprise Telecommunications Centre Ltd	4 October 1999
Telstra Corporation Ltd	17 September 1999
Vodafone Network Pty Ltd	20 September 1999