



3G, or not 2G: that is the question—of mobile telephone futures

Introduction

Third Generation (3G) mobile telephone systems represent a huge investment in technology. The telecommunications industry has visions of consumer-driven access to mobile multimedia services. However, 3G challenges regulatory policy as it represents a convergence of content, devices and networks, with many companies involved. This Note examines matters of industry development, appropriate content protection and misuse, regulatory controls and future network trends.

What is 3G?

3G uses a different range, in the radiofrequency spectrum, to second generation (2G) mobile telephones, to provide a wider range of services. Australian 3G networks operate in the 2100 Mega Hertz (MHz) frequency band; 2G networks operate at 825–845 MHz (CDMA) and 935–960 MHz (GSM). 3G offers scope to provide television, radio, music, telephony, Internet, games, etc to handheld devices, albeit in changed forms. For example, only short duration media streaming seems suited to mobile devices, not normal programming. 3G aims for high-speed data capacities and may be used for applications like:

- full video, videoconferencing and calls
- Internet access, email and news links
- high resolution camera links
- music storage and playback, as well as
- pornography, gambling and games.

3G in Australia

3G network trials started in Japan in 2001 and in Europe in 2003. 3G began rolling out in Australia in 2003/2004 with the launch of the [Hutchison](#) brand '3' in Sydney and Melbourne in mid April 2003, and in Brisbane, Adelaide and Perth in early July 2003. In August 2004, [Telstra](#) announced that a network-sharing agreement had been struck with Hutchison for Telstra to launch its 3G services in September 2005. In 2004 [Vodafone](#) announced that

Nokia was to build its 3G network for Australia and New Zealand. In July 2005, Vodafone unveiled its first 3G handsets ahead of their launch in October 2005. In 2005, [Optus](#) conducted trials on a 3G network and pooled its resources with Vodafone.

Australian 3G operators are offering online soap operas, music videos, exercise programs, various ring-tones, short films, news and sport, to encourage user take-up. Users face a bewildering array of fees, charges and usage plans. On the business side, content acquisition and programming are big issues for telecommunications and content providers. Satellite service providers are also positioning to offer digital multimedia broadcasting and Internet network services into handheld devices and mobile phone alternatives.

3G: commercial profitability?

While 3G appears to be more advanced overseas, observers are not convinced of its profitability there or here. A global handset shortage and a lack of content drivers are affecting take-up, while various formats and operating systems thwart interoperability. Operators here have to recover their investment of over \$1.17 billion on spectrum purchases in 2001. While the 3G industry promotes mobile telephone usage growth, with only half a million 3G users so far, the survival of all services is uncertain, as is the future of current 2G use. Operators risk cannibalising their existing 2G subscriber base of 20 million units as users upgrade handsets to access 3G.

At this early stage of deployment, it is not clear whether 3G will survive as a technology platform winner. Operators will vary pricing structures and content formats to win over more customers. However, critics such as industry commentator Paul Budde predict that companies will be unable to recoup their 3G investment in spectrum and technology.¹ He sees the key issues as high speed versus cost tradeoffs with current systems unable to offer both, while under threat by rivals such as wireless broadband.² The marketing of 'cool' handsets as trendy accessories may be a key factor affecting 3G take-up. Other issues affecting take-up are alternative systems and content rights.

3G: barriers to expansion

A new trial of digital video mobile broadcasting handheld technology (DVB-H) is underway that may provide an alternative to 3G. The Sydney trial, conducted by Bridge Networks, focuses on reliability, using a video mobile telephone with a special attachment. Since 3G is a one-to-one service, single reception is subject to signal drop-outs when service is congested. As DVB-H is a digital television broadcast service, its signal goes from one point to many phones at once without drop-outs.³

The issue of Internet Protocol rights clearance thwarts open sharing of content among the 3G service providers. They also need to apply firm content management, often at a global scale. The costs of deals for 3G sporting and music rights also threaten viability. Some companies reap large revenues from mobile telephone downloads. Now they work with software and hardware providers to ensure that digital rights management systems and file formats can integrate as smoothly as possible.

Demand for 3G will not be driven by the technology platform as such, unless 3G is seen to offer new, easy to use, innovative and useful personal services to now 'unaware' consumers. Drivers might be GPS location functions, photo taking, stereo sound and music. Cheaper alternatives such as free Internet, for real time or deferred content downloads, may challenge the use of 3G by consumers.

Managing contentious content

A baffling plethora of regulations generated by different government agencies confronts 3G developers. The same content is subject to different rules according to the media involved e.g. for computer games, with censorship over the Internet, or not on mobile phones or handheld units. A 'delivery diversity dilemma' confronts policy makers such that the issues may be left to industry self regulation.⁴ For example, when is a game a film, or when is consumer content public or private, given the huge, ubiquitous scales of use? The effective regulation of content services may have to consider customer age verification, content assessment, complaint handling, privacy and enforcement issues.

In industry slang, 3G can also mean 'Girls, Gambling and Games' raising the spectre of increased availability of pornography and gambling. Given the popularity of mobile telephones among youth, people concerned with community standards have recognised a need to protect those at risk from online pornography, gambling and criminal activities which are available on mobile systems. On 13 May 2004, the Minister for Communications, Information Technology and the Arts directed the

[Australian Communications \(and Media\) Authority](#) (now ACMA) to establish a Service Provider Determination to require premium adult message services to have specific prefixes and prohibit the supply of banned content to such services. The resulting draft service provider determination⁵ sets out the restrictions on content and obligations on carriage service providers regarding mobile chat rooms and ancillary matters.⁶

On 26 May 2004, the Australian Broadcasting Authority (now ACMA) released a code of practice⁷ to ensure that mobile content providers do not supply any material classified in the X18+ or RC classifications. As well, the code provides for users wishing to access content in the R18+ or MA15+ classifications 'to opt-in to receive'. The code aims to ensure consistent treatment of content across the fixed and mobile entertainment platforms. Note that no age restrictions apply to 3G usage.⁸

The separate online content co-regulatory scheme provides for the development and operation of industry codes of practice for the Internet industry, and requires Internet service providers and Internet content hosts to inform users about content filtering tools. The Minister for Communications, Information Technology and the Arts reports to the Parliament every six months on the online content scheme.

The [Telephone Information Services Standards Council](#) handles consumer complaints about content at www.190complaints.com.au. The '190 services' provide the convenience of value-added information and entertainment via telephone, fax, SMS and the Internet, not just on 2G or 3G.



Anti-competition and privacy

The [Australian Competition and Consumer Commission](#) (ACCC) has expressed concerns about the possible exclusive sporting deals on 3G services being anticompetitive.⁹ The ACCC has been involved in various fora discussing next generation networks (NGNs) and interconnection between them.

The [Privacy Commissioner](#)'s new report into privacy and new technologies notes the impact of mobile phone cameras and new mobile phone technologies such as 3G on the collection and use of personal information.¹⁰

Next Generation Networks

The above considerations also extend to NGN successors to 3G. The current regulatory regime may therefore not be appropriate in an NGN environment. Building on 3G, NGNs are future ubiquitous networks, able to support fixed and mobile users and able to carry voice, data and multimedia services anywhere. NGNs will be packet based, with the use of the Internet Protocol transmission standard. One of the major innovations emerging from NGN activity is the introduction of network design based on 'layers' with open, standardised interfaces between each layer. This approach plays an important part in both the standards-based NGN and transitional services. Applications can be provided over these service layers, using their underlying facilities, and could be accessible from a range of networks and over a variety of access arrangements. In the near future, new wireless broadband services, as a form of NGNs, may push out 3G.

Australian government regulation and/or policy will have to take into account the layered architecture likely in future networks, with different and new service provider types possible for different layers. In addition, there is the prospect that the layered model may change over time, according to the Australian Communications Industry Forum, as a result of further technology change or other influences on the market. Others though might argue that NGNs are more a case of a continuing dominant mantra for choice, competition and consumerism.

Coping with change

If 3G succeeds, 2G users may find they have no further use for their old handsets. The Mobile Phone Industry Recycling Program aims to ensure that potentially toxic components in mobile phones are recycled rather than dumped. The scheme operates under the [Australian Mobile Telecommunications Association](#), a national body for the mobile telecommunications industry.

1. Christopher Zinn, 'Why 3G is ready to rumble', *The Bulletin with Newsweek*, 24 May 2005, p. 44+.
2. Matthew James, 'The Internet telephone: Voice over Internet Protocol (VoIP)', *Research Note*, no. 29, 2004-05, Parliamentary Library, 8 February 2005.

3. Jane Schulze, 'Enhanced mobile television technology to be tested', *The Australian*, 14 July 2005, p. 17.
4. Simone Brandon, 'The State of Play in Games Regulation', *Communications Law Bulletin*, Volume 24, Number 1, June 2005, pp. 6-8.
5. *Telecommunications Service Provider (Mobile Premium Services) Determination 2005 (No.1)*.
6. Allison Manwell 2005, 'Mobile premium services – another layer of content regulation', *Internet Law Bulletin*, Volume 8, Number 2, May, pp. 27-8.
7. Internet Industry Association, *Codes for industry co-regulation in areas of internet and mobile content (pursuant to the requirements of the Broadcasting Services Act 1992)*, Version 10.4, 2005.
8. ACMA has power to make technical standards in relation to specified customer equipment. The installation of all mobile phone telecommunications facilities are subject to additional requirements.
9. James Riley, 'Big hitters thrash out net, mobile', *The Australian*, 1 February 2005.
10. Anne Trimmer, 'Privacy Commissioner reviews new technologies', *Minter Ellison Connect*, 16 August 2005.

Matthew L James
Science, Technology, Environment and Resources
Section
Information and Research Services

Except to the extent of the uses permitted under the Copyright Act 1968, no part of this publication may be reproduced or transmitted in any form or by any means including information storage and retrieval systems, without the prior written consent of the Department of Parliamentary Services, other than by senators and members of the Australian Parliament in the course of their official duties.

This paper has been prepared to support the work of the Australian Parliament using information available at the time of production. The views expressed do not reflect an official position of the Information and Research Service, nor do they constitute professional legal opinion.

© Commonwealth of Australia 2005
ISSN 1449-8456