

**ACCC Regulatory Conference**

**‘Spotlights and shadows’:  
innovation and competition in digital communications**

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1. I am delighted to be invited to speak today. I have been coming to Australia to talk about telecoms since the late 1990s and it is always interesting and enjoyable. I have represented various firms in the past, but today I speak in an entirely personal capacity.



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2. My talk is titled ‘spotlights and shadows’ and my basic argument is this:
  - a. We all tend to pay attention to what is in the spotlight, and ignore what is in the shadows. The spotlight is unforgiving and means we get preoccupied with the flaws and blemishes, but we lose a sense of perspective by doing so.

- b. We see this in the focus on horizontal competition between network operators. We need this to ensure the constant diffusion of new network technologies and the devices which allow consumers to exploit them. This remains the case even as the role of network operators in the innovation process for the services and applications which run over their networks becomes an increasingly marginal one.
- c. But as their role changes, telecoms operators also need to find new ways to extract a share of the value which is created and enabled through their activities or, as it is now fashionable to call them, their 'platforms'. It is discouraging to find that telecoms operators are prevented by regulation in many countries from charging the providers of digital services and applications for privileged access to their network resources. Operators are being forced to run two sided platforms with a price of zero on one side. I think this is an extreme constraint which inhibits the capacity of both the digital service providers and the networks to use network resources in innovative ways, and hinders the ability of telecoms operators to properly monetise their assets, as well as producing other undesirable outcomes.
- d. The capacity of network operators to capture a share of the value they enable also depends on their vertical relationships with those firms who have displaced them and who now dominate the innovation process in devices, services and applications: namely Apple and Google, who control the two global telecoms operating systems.
- e. These firms have been able to extract a very large share of the value that has been created when new digital technologies are deployed by network operators over the past decade, although each employs a very different business model to do so. They remain largely in the 'shadows' as far as telecoms regulators are concerned. I think it is time for regulators like the ACCC to widen the aperture on the spotlight.

## The role of network operators has changed

- Competition in telecoms has been good for network investment, poor for service innovation
- Network operators no longer orchestrate the rest of the value chain...
- ... but network competition still important in driving technology diffusion in both networks and devices at huge scale
- More disruption to come with network 'virtualisation'

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3. Perhaps the key reason to pursue competition and competitive markets in any sector is to stimulate and reward innovation. Competition seemed to make a lot of sense in telecommunications, despite the obvious costs of duplicating assets. Of all the former state owned monopoly sectors, telecommunications has seen the greatest degree of technological innovation in the underlying network infrastructure, with each technology cycle yielding huge reductions in unit costs and a corresponding expansion of output and consumption. Since I joined the industry in 1991 we have seen four generations of cellular network technologies, each lasting 7-10 years, with another, 5G, just around the corner. We have also seen at least four fundamental changes in fixed network technology.
4. Some years ago I was involved in research which sought to determine the extent to which reductions in unit costs in the European telecoms industry were associated to technology innovation, as opposed to increases in competitive intensity at the retail level. Using operator margins as a proxy for competitive intensity, we found that unit prices in Europe ought to have fallen by about 10% over the decade to 2014. In fact they fell by over 60%: most of the difference was attributable to investments and improvements in the underlying network technologies.
5. When the case for network competition in telecoms was first being made, the owners of the network infrastructure were instrumental in the innovation process and orchestrated the rest of the telecommunications value chain. In the UK, BT had driven innovation in digital switching and privatisation was partly undertaken to provide it with the finance to allow it to deploy the new technology. Telecoms operators could rightly consider themselves to be 'innovation makers', bringing together complementary assets like towers and wires, network equipment

and software and handsets, modems and other devices, and orchestrating the entire supply chain in the process.

6. However, the shift to the internet and to IP technology over the past 15 years means that the owners of the network infrastructure have gradually found themselves playing an ever more peripheral role in the innovation process. We are now supposed to be in an era of ‘permissionless innovation’. Telecoms operators are increasingly ‘innovation takers’ rather than ‘innovation makers’. Most innovation in services, software and devices now occurs independently of the networks and is being orchestrated by firms who stand outside of any conventional telecoms market. It is these firms – Google and Apple in particular as the two firms who control the global telecoms operating systems, iOS and Android – who now preside over the innovation process in which the network operators find themselves increasingly subsumed.
7. The shift in the focal point for innovation reflects a shift in the model of competition which is used to incentivise and drive innovation. Competition between network owners has always been carefully managed by sector regulators like the ACCC. Competition in fixed networks has always been rather limited, but even in wireless it involves competition ‘in the market’ in which a small number of firms with high sunk costs co-exist in a relatively stable manner. These firms typically rely on the same core technologies and are required to ensure that services interoperate or interconnect with each other. This requires in a high degree of interaction between the players and assets, such as mobile towers, are often shared. Schumpeterian ‘innovation risk’ – that another firm will invent and deploy a proprietary technology or service which cannot be replicated – does not exist to any significant degree. The risk of exit is comparatively low, but so too is the opportunity for market domination. Entry barriers in telecoms are physical, not intellectual. The result is a kind of ‘Goldilocks’ competition, neither too hot nor too cold. Firms running critical national infrastructures don’t tend to follow Mark Zuckerberg’s invitation to ‘move fast and break things’.
8. This model of competition has supported successive waves of investment in telecommunications infrastructure over the past 20 years, particularly in wireless, with corresponding benefits for other participants and for society. New technologies have been integrated into existing networks by means of a series incremental steps, with the same physical network assets (and radio spectrum) being recycled and reused to more efficient ends. It has enabled the distribution of consumer devices to billions of customers so they can exploit new network capabilities and access the new digital services which they enable. To my mind, the industry’s greatest achievement lies in getting transformative technology into

the hands billions of people around the world, and in creating the vast logistics and distribution chains that are required to achieve that feat. No other former utility operates with the same technology replacement cycles and none has anything close to the retailing capability of the telecoms industry.

9. At the same time, the model of competition required for the provision of telecoms infrastructure has not proven very effective at supporting rapid innovation in digital services or in customer devices themselves. Having once been instrumental in this process, network operators have found themselves too slow, too risk averse and lacking in the software and engineering expertise to compete with the more agile digital services players who have emerged. These internet firms do not co-operate much with each other and are often engaged in competing not 'in' but 'for the market'. They face higher 'innovation risks' in a world of proprietary technologies and algorithms, and are more susceptible to creative destruction. Devices are not upgraded but replaced. Entry barriers are not physical but intellectual, or derived from network effects which reward the most aggressive firm. Many fail and exit, but winners like Apple and Google (and Facebook and Amazon) acquire positions of market power (and earn financial returns) which telecoms operators can only dream of.
10. And there is more disruption to come as today's telecom networks are 'virtualised'. This means that the management and orchestration of the network itself – not just the services which run over it – will increasingly migrate out of the routers and boxes (and the SIM cards) that are currently deployed in the physical network and into the cloud. The telecoms network operators will find themselves further marginalised as a result and much of the 'technology' that is deployed inside the physical network today will in future be replaced by software under the control of firms who do not need to own or manage any physical assets, just as Uber does not need to own vehicles and Airbnb does not own hotels.
11. Whatever happens, today's telecoms operators will, as former European Telecoms Commissioner, Neelie Kroes used to say, find themselves having to 'adapt or die'. Let me discuss one way in which they might do so.

## Network operators need to adapt

- More pricing innovation is required from operators to extract value from their network assets
- Net neutrality regulation in US and Europe prevents operators charging for privileged access to network resources (with spillover effects for RoW, including Australia)
- This inability to transact to share value may already be driving vertical integration/internalisation between services and networks....
- ... and calls for network consolidation and collective bargaining

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12. As is well known, many internet firms supply services to consumers without requiring any form of monetary payment. The currency for the transaction is user data which is monetised through sales of targeted advertising opportunities. These multi sided business models have played a key role in digital platform growth and development, and in the subsequent creation and capture of economic value. In contrast telecoms operators have been prevented by net neutrality regulation – at least in the US and Europe - from pursuing their own multi-sided charging models. The FCC is currently revisiting the whole smorgasbord of US net neutrality regulation, including the current prohibition on payments for traffic ‘prioritisation’, or what I would prefer to call, the ‘preferential allocation of network resources’. Whatever the merits of other aspects of net neutrality, I think this is one rule which the FCC would do well to remove.
13. The ban arises from concerns that allowing a network operator to charge, even on a consensual basis, might exclude smaller firms who would either be unable to afford the charges or would find themselves excluded by a larger rival that had secured an exclusive arrangement with the operator. In the extreme, the larger firm might be an affiliate of the network operator itself.
14. Supporters of such a ban might reasonably argue that innovative internet services have developed over the years without firms being able to obtain privileged access to network resources, and so the value of what operators might be able to offer or the revenues they might be able to extract from offering such a facility are uncertain at best and may be non-existent. They might also point out that the internet firms who might gain from such capabilities do not seem to want them and tend to be supporters of the existing restrictions, at least in public. The large differences in the capabilities of telecoms networks when a large

internet provider is deploying services on a global scale may always lead them to design the service to a lowest common denominator set of assumptions about network performance, or to develop global applications which can adapt to different networks. That is certainly a reason why network operators in a national market like Australia are unlikely to get much traction unless and until similar opportunities arise in the US and Europe, and why I think the ACCC ought to take an interest how those markets are regulated: there are spillover effects for Australian firms and for the Australian market.

15. These may all be true, but the point about innovation is that you don't tend to know what works until you try it. It seems to me that offering preferential access to network resources, in whatever form that might take, is sufficiently close to the core competences of telecoms network operators to be at least a plausible thing for them to attempt. And it seems to me that the increasingly heterogeneous demands which digital services and applications place on the networks might reveal some willingness to pay for such capabilities. Equally both assumptions might be wrong: you need to enable a market and transactions to find out.

16. In any event, the current ban is very troubling on several counts:

- a. First, it seems absurd to prohibit telecoms operators when outside of the spotlight unregulated platforms are constantly using multi-sided pricing to extract value for themselves and to determine how resources are allocated. Any internet start up may never be discovered by users because larger rivals purchase a higher ranking in AdWords and push them down the search results; lose out to bigger rival who can afford to pay to be hosted by a Content Delivery Network which bypasses congestion at the public peering points that are used by those who cannot pay (or the bigger firm may build their own CDN for this purpose); or may not have an arrangement with a mobile device manufacturer to preinstall their application on the home screen alongside those of its rivals.
- b. Second, it seems absurd to prohibit all transactions just because some transactions, under some circumstances, might have exclusionary or otherwise undesirable consequences. Even if we were to be concerned about price discrimination in transactions between network operators and service providers, I do not see why a price of zero should be regarded as being the only price capable of alleviating those concerns.

- c. Third, I am concerned about the behaviour which the current ban induces. If network operators cannot capture value through transactions, they will be incentivised to try to capture value by other means. A popular option at the moment seems to be for telecoms operators to vertically integrate by acquiring the services and content companies which might otherwise have been paying customers. The former FCC Chairman, Tom Wheeler, argued in the last speech he made whilst in office that net neutrality regulation was justified on the basis that vertical mergers like AT&T/Time Warner would otherwise had to have been prohibited. I think that puts the cart before the horse. It would be much better if regulators were to allow independent firms to transact with each other *before* considering whether they should be allowed to merge.
  - d. Fourth, I do not think the competition problem is as often presented. Rather than being concerned that powerful digital content and service providers would pay operators to command a greater share of scarce network resources, I think it more likely that the largest firms will be able to exert their market power by *avoiding* payments which smaller rivals might have to make. It seems to me more plausible that firms like Netflix or Facebook could use their market position to obtain preferential access to network resources without paying, shifting costs onto other services or other groups of consumers in the process. Allowing other firms to make such payments may be necessary to promote innovation and preserve competition.
17. The other problem is that the inability of operators to monetise assets adequately then leads to other proposals from network operators which have been rightly rejected by regulator. I think policymakers in Europe and the US have rightly resisted claims that a significant reduction in network competition – through mergers - is the way to address their monetisation challenges. It is not clear to me why network operators should be able to impose higher charges on their retail consumers to compensate for their inability to impose charges on the other side of the platform. I think of this as an example of the ‘two wrongs do not make a right’ principle of regulation.
18. Policymakers have also been right to resist arguments by network owners – and increasingly I note by other industries - that consolidation or greater scale amongst network owners, or that collective bargaining on their part, is required to improve their position in their negotiations with the global digital service providers. The European network operators proposed changes to the rules at the 2012 World Conference on International Telecommunications which many interpreted as an attempt to use regulation to introduce collective bargaining with the large digital service providers and thereby impose wholesale access charges akin to MTAS. This

was rightly opposed by regulators in Europe in another instance the ‘two wrongs don’t make a right’ principle. I note the ACCC has recently taken a similar view in relation to a request from the Australian banks to allow them to collectively negotiate with Apple about their payments service, and that now the US newspaper publishers, led by the News Media Alliance, have been reported to be seeking a similar antitrust exemption from Congress.

19. Having criticised the ban on selling privileged access to network resources, let me turn to another aspect which profoundly affects the network operators’ capacity to innovate and to monetise their assets. In telecoms, the regulatory spotlight’s incessant focus on horizontal competition between telecoms operators tends to obscure the vertical relationships between telecoms operators and digital services and applications providers, and between telecoms operators and device suppliers. Services, devices and networks are the three goods which customers jointly consume and from which they derive value for which they are willing to pay. Relations between the suppliers of each of these goods determines how that value is allocated amongst them. Their complementary nature means that device makers and digital service providers need telecoms operators to be able to finance their operations, but there is a fight for whatever surplus is created beyond that.
20. Let me illustrate how these relations change over time. When I joined the mobile industry in 2001, there was great concern about Nokia’s domination in handset markets and its consequent capacity to earn very high margins on its sales of devices to network operators. The power of the Nokia brand was such that most consumers selected their Nokia before choosing the network to which they would attach it. The network operators’ response was to encourage and support competition from emerging Asian device manufacturers like Samsung. Nokia’s margins, and ultimately its device manufacturing operations, declined in the face of these new competitors. The network operators were able to achieve this result this because their control over device distribution enabled them to promote rival devices through their own channels, and because the standardisation process in the telecommunications industry allowed the new Asian entrants to adopt the same underlying technologies as Nokia.
21. Although the standardisation process today still allows for core parts of the radio and network technology to be replicated so that devices operate with any network, the capabilities that matter most to users today are governed by proprietary technologies and software, the exploitation of which is defended with patent portfolios and litigation, neither of which featured twenty years ago. The mobile operating system has now become the foundational platform upon which a complex environment of digital applications, services and devices are

built and the two rival OS platforms – Android and iOS - represent two very different visions of the digital economy.

### **Telecoms operating systems**

- Critical role in performance of related markets
- Enormous value extraction
- Few prospects of entry..
- ...but radically different business models
- Little regulatory scrutiny to date
- Network operators' bargaining position will be further weakened as device sales move online and networks (including SIMs) are virtualised

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22. Apple makes the bulk of its profits from sales of hardware, the production of which is extensively outsourced but the IP of which is fiercely guarded. In 2011, it was reported that Sprint had paid Apple a minimum of \$15.5bn over 4 years in order to be able to sell the iPhone on its network, a year in which Sprint invested around \$3bn in its network.
23. In contrast, the Android platform promotes competition amongst third party manufacturers of the hardware, and devices are simply the means by which Google's software is distributed to users under the terms of the Mobile Application Distribution Agreement or MADA. Google does not currently charge device manufacturers a fee for the Android licence. Instead, it extracts and monetises the data which is collected by the suite of Google applications which are bundled into every Google Android device. This is the first year in which Google is expected to derive the majority of its \$90bn of revenues from mobile advertising.
24. Thus, in 10 years the device market has evolved from being one about hardware and standardised technologies over which the telecommunications operators could hope to exercise significant influence through their control of distribution, to one which is founded on proprietary operating system software, which exhibits the network effects characteristic of other digital services markets, and which is controlled by Apple and Google.

25. Telecoms operators have long understood the risk of market concentration in operating systems and have consistently sought to promote competition, with some initially joining the Open Handset Alliance on which Android was founded as a counter to Apple. Subsequently, they have also sought to promote Microsoft's Windows and Mozilla's Firefox, amongst others. But the inability of anybody to challenge Google and Apple outside of China over the past decade is evidence that control over the channels through which the devices and hardware are distributed no longer gives telecoms operators the kind of influence it once did.
26. When regulators have shone the spotlight on the telecoms OS market in the past, they have focussed on the impact of restrictive distribution agreements for telecoms network competition. Investigations in the late 2000s in the US and Europe related to the impact that exclusive device distribution arrangements might have on competition between telecoms operators.



27. In the past few years the European Commission has focussed on alleged restrictions which favour Google's own digital services (which comprise the Google Mobile Services bundled into Android) over rivals. It found that Google held a dominant position in a market for licensable operating systems, an intermediary market in which Apple does not participate since it does not licence the iOS. The Commission proposes to require Google to unbundle different elements of the Google Android platform and remove certain restrictions in the MADA.
28. But it is unclear whether these measures will have much impact on competition in the telecoms operating system or the downstream device markets, or that they will alter the terms of trade between telecoms operators and Google. The Commission seems to have concluded

that more intra-platform competition is required, but is doing rather less to promote more inter-platform competition between operating systems. Some argue that the Commission's proposals might even *weaken* the incentives for application providers to develop their own OS in future or even Google's incentives to continue to support and invest in the Android platform in order to compete with the iOS.

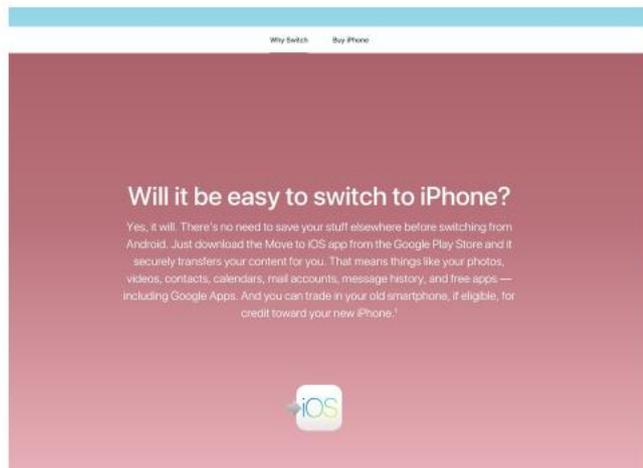
29. The European Commission was also reported to have sent a questionnaire to a number of European operators in 2013 about the terms under which Apple supplied its devices to operators, raising both exploitative and exclusionary concerns. It sought information on whether Apple imposed minimum volume purchase commitments, whether it sought to restrict sales of other devices, and whether it dictated how Apple devices were to be subsidised on MFN terms. The Japanese authorities have also raised concerns about whether Apple imposed restrictions on telecoms operators concerning the onward sale of old model iPhones into markets outside of Japan. There may have been similar enquiries elsewhere in the region. But I am not aware that any of these has resulted in action being taken against Apple.
30. Most telecoms regulators I know would want to investigate a duopolistic market which had high and apparently enduring entry barriers, returned unprecedented levels of profit to the participants, and on which innovation in a large number of related markets depended. The French telecoms regulator ARCEP is one of the first I know to study the issue and published a short report last month in which it noted:

*At the time when devices play an essential role in accessing the Internet, offer functionalities that are potentially very different and are in part controlled by a small number of economic stakeholders, they need to be taken into consideration when assessing the smooth functioning of the Internet. It appears nevertheless that the regulation on the open Internet, despite an ambitious objective, neglects this link in the chain that extends from the end-user of the Internet service to the information, content, applications and services<sup>1</sup>*

31. The picture is made more complicated by the very different business models and visions that are being pursued, prompting difficult questions, at least in my mind, about the nature of the competitive constraints which each imposes on the other. A few months ago Apple relaunched an online campaign to encourage Android users to switch from Android to iOS.

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<sup>1</sup> [https://www.arcep.fr/uploads/tx\\_gspublication/study-end-user-devices-internet-openness-may2017.pdf](https://www.arcep.fr/uploads/tx_gspublication/study-end-user-devices-internet-openness-may2017.pdf)



I wonder how Google's advertising rates would respond to a small but significant non-transitory increase in the price of an iPhone, or how Apple would respond to a change in the terms of the MADA. Perhaps the European Commission's forthcoming Android decision will help us understand this.

32. What I think is clear is that the terms of trade between Apple and Google on the one hand, and the telecoms industry on the other, have a profound impact on the performance and prospects of the latter but have largely been ignored by those who regulate the telecoms industry. This is not to say that regulators should now jump in to intervene in support a particular set of economic interests, or that the increasing marginalisation of the network operators is evidence of any deliberate anti-competitive conduct on the part of the OS providers. But it is to suggest that the conduct of the mobile operating system providers ought to move out of the shadows and into the regulatory spotlight - and not just in Europe but around the world.