Excepting the Future

Internet intermediary activities and the case for flexible copyright exceptions and extended safe harbour provisions

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Report at a glance

Copyright can strengthen the incentive to create by affording rights holders exclusive rights to exploit their work. This can bring into existence work that would not otherwise exist, generating economic benefits.

A content owner's exclusive rights are subject to limitations and exceptions. These mediate the respective rights of the myriad participants in the copyright eco-system, where intellectual property (IP) outputs are, to an increasing extent, developed from IP inputs, where creators are also users, users are creators and copyright material cannot be distributed digitally without copies being made.

Limitations and exceptions determine questions like:

- How much may be quoted from a copyrighted work before permission must be sought?
- In what circumstances can someone who has a legitimate copyrighted work change the format in which it has been supplied, or the time and place at which they use it?
- Where an intermediary makes a digital copy of a copyrighted work to assist in disseminating it to legitimate users, in what, if any, circumstances must they obtain explicit permission?

A companion report, *Exceptional Industries,* reveals the economic contribution to Australia and other countries made by industries relying on such limitations and exceptions to copyright. In Australia in 2010 this includes:

- Contributing 14% of Australia's annual Gross Domestic Product (GDP), or $182 billion;
- Employing 21% of our paid workforce, almost 2.4 million people;
- Paying wages and salaries of $116 billion.

Evidently even if limitations and exceptions made just a small difference to the efficiency of these industries or to the value they generate for others, **better-crafted limitations and and more flexible exceptions could make a substantial contribution to Australia's economic growth and innovation**.

Currently Australian law provides exceptions to copyright limited to very specifically defined exceptions for 'fair dealing' legislated into the Copyright Act. By contrast, other jurisdictions such as the United States and Singapore enjoy exceptions that are more flexible but which are nevertheless subject to careful tests to ensure that they do not undermine the ability of rights holders to exploit their work.

Because they can only be used where such tests can be met, provided they are properly crafted, **flexible exceptions should have negligible downsides for rights holders**. On the other hand they will assist in the distribution of copyrighted works – which will improve the market for such works. And they will permit new and innovative uses that could not be anticipated by legislators before the event.

For instance when it was first introduced, Apple's iPod relied on the user's ability to format shift copyrighted content that had been legitimately obtained. This right was unclear under Australian exceptions but permitted by the more flexible exceptions in the US. In addition, in substantial part because of our more constrained limitations and exceptions, it took ten years for TiVo to make it to Australia and then with a more limited feature list than was provided in the US.

In addition to these inadequacies in Australia's exceptions regime, Australia's existing safe harbour rules provide inadequate protection for many internet intermediaries seeking to distribute legitimate copyright material to legitimate users. This raises risks and inhibits investment in internet intermediary services. A study of the perceptions of early stage angel and venture capital investors in the US and Europe found that their investment decisions are affected by copyright-related risk. **These early stage investors put a risk premium on internet intermediary investments to the Australian equivalent of around $2 billion a year when faced with inflexible exceptions and limited safe harbour provisions**.

Further, the internet is a 'general purpose' or infrastructural technology like the internal combustion engine or electricity and is accordingly integral to its users' productivity growth. We have simulated a scenario in which, as a result of introducing flexible exceptions, real growth is just one-hundredth higher than it was from 2007 through 2010 for those industries we have identified as relying on limitations and exceptions to copyright. This increases aggregate annual industry value added through time so that after ten years **the additional annual value added or welfare gain to the Australian economy would be $593 million**.

The familiar, and many less familiar names of internet intermediary services, such as Akamai, eBay, Facebook, YouTube etc. show that they can make a major contribution to the economy. And yet, in Australia, all these businesses are exposed to risk of copyright violations. With inadequate and inflexible copyright exceptions, and with safe harbour protections extending only to carriage providers and not internet intermediaries, there is substantially more risk to such services in Australia than in the US and in comparable countries like Singapore.

Given this, it is hard to gainsay the benefits of *Excepting the Future*.

Executive summary

The internet is bringing pervasive change and with it new opportunities

Established almost exactly 300 years ago, the legal architecture of copyright presumes clear distinctions between creating and using a work and between handling and copying a work. Investing in physical assets like trucks and buildings to transport, house and market physical copyrighted goods like books and magazines has never attracted the application of copyright law. By contrast digital content cannot be handled without copying it. Thus in the digital world, **the distinction between handling and copying a work has completely broken down.** All handling of digital content, however helpful to society or rights holders, may *prima facie* be a breach of copyright, attracting liability to rights holders if they have not permitted it.

This situation is dysfunctional. It is not unlike the state of air-space law at the point at which the development of aviation had rendered it obsolete. In the early twentieth century, following Roman Law, land owners held exclusive rights "up to Heaven and down to Hell" giving them impracticable veto powers over air routes.

Economic decision makers can usually 'muddle through' the dysfunction to capture most of the available economic gains. However this can limit local investment because many services can be provided from offshore jurisdictions that expose internet intermediaries to less copyright risk.

Australia needs a flexible copyright exception capable of permitting unanticipated innovations that are fair to rights holders, as well as an extension of safe harbour provisions to all intermediaries.

The value of intermediary activities

The activities of internet intermediaries (e.g. caching, hosting and indexing) are the backbone of the internet. Facilitating and enabling such intermediary activities is clearly worthwhile and we should do so wherever possible, particularly when there are negligible costs to others and potentially significant wider benefits.

The value of the internet for users is at least equal to the value they would put on the time they spend using it. Combining our own research with that of others, this 'use value' of online activities to household internet users in Australia is estimated to be around $60 billion a year. Internet intermediary services are major contributors to that value:

- Search, navigation and portals are estimated to be worth around $12 billion a year to Australian households;
- Social networks hosting is estimated to be worth around $13 billion a year;
- The increase in the variety of goods and services available online is estimated to be worth around $16 billion a year; and
- Efficiency gains to the economy are estimated to be worth around $8 billion a year.

Inefficiencies in licensing create costs to creators, innovators and consumers.

A critical driver of productivity growth from the internet has been the way in which collapsing transactions costs have enabled all sorts of interactions to occur, adding value to content in myriad ways, not least by allowing producers and legitimate consumers of content to find and access each other. The current state of copyright law provides a very unsatisfactory and uncertain environment for these connections to be made.

As Weatherall (2011) noted:

> *... due to the nature of digital technology, just about any online or digital activity - such as reading an eBook or listening to a digital music file - involves making copies of copyright material into digital memory. Owing to the way reproduction is defined in Australian copyright law, most of these copies... require permission from the copyright owner or an exception. This is true even where equivalent acts offline (reading a book, listening to music) involve no infringement. . . . Internet intermediaries are therefore likely to undertake many actions that fall within the reproduction right in Australia – and their users will too.*

They accordingly require permission from copyright owners. To avoid all doubt, they would need explicit permission from all rights holders involved. But this is quite impracticable. For example, if the 170 search engines listed at << http://www.philb.com/webse.htm >> transacted with all 3.8 million Australian domain name registrants, it would involve 645 million transactions. If each transaction took 9.5 hours, then at average weekly wages the transaction costs would exceed $150 billion a year. Yet even if this were affordable, it would still fall pitifully short of what would be required, for Australian users seek search results from the global internet (comprising over a trillion web pages), not just Australian sites.

In fact internet intermediaries rely largely on presuming that rights holders wish intermediaries to handle (and thus copy) their content, especially since it is standard practice for intermediaries to automate the process by which rights holders can opt out of the process. Yet relying on such an informal process involves greater risks for intermediaries under Australian copyright law than it would with more flexible exceptions and broader safe harbour provisions. It should not surprise us if companies continue to service the Australian market from offshore for those activities where it is technically possible – such as indexing of sites or hosting of files – to avoid unnecessary legal uncertainty.

The benefits of flexible exceptions and extension of safe harbour provisions

The US doctrine of 'fair use' illustrates how a flexible exception works, though it need not be the only possible model. Under the US system, without permission from the rights holder, a use is 'fair' having regard to the following criteria:

1. the purpose and character of the use, including whether such use is of a commercial nature or is for non-profit educational purposes;
2. the nature of the copyrighted work;
3. the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and
4. the effect of the use upon the potential market for or value of the copyrighted work.

While there are many possible benefits associated with granting flexible exceptions and extending safe harbour provisions for internet intermediary activities, this study focuses on the three impacts itemised in the following subsections.

Risk and cost of litigation

Flexible exceptions have played a critical role in permitting major innovations in ICT and on the internet in the US – for instance in the case of search technology and Apple's iPod. Where parties rely on the exception for new applications this raises the scope for 'test cases'. In fact the US case suggests that despite this and despite its breadth, litigation under 'fair use' is actually relatively low.

If Australia did introduce a flexible copyright exception, then even if there were a temporary increase in litigation as test cases were heard, this would be the price of substantial innovation downstream and would establish the ground rules within which other businesses could have increased certainty for their operations as has occurred in the US. Further, our own flexible exception might borrow from the jurisprudence of other countries so as to improve the certainty with which it could be introduced and reduce the need for test cases.

Even if our own narrowly specified exceptions do provide a greater level of legal certainty, this benefit is likely to pale into insignificance against their chilling effect on innovation. In any event, there is some evidence that defining exceptions too narrowly can *increase* legal uncertainty as stakeholders must determine whether specific exceptions apply each time technology changes.

Risk and investment

Risk perceptions influence investment decisions, particularly in investment by entrepreneurs, angel and venture capital (VC) investors. Numerous studies suggest strong links between such early stage investment, innovation and growth.

Recent studies explore the impact of changes to copyright regulations on early stage investment in internet or digital content intermediaries in the US and Europe.[1] They examine the cost of reducing the flexibility of exceptions and safe harbour provisions, and increasing uncertainty (i.e. the opposite of what is being proposed in this report). Their evidence thus includes proxy valuations for reducing risk and uncertainty, and extending exceptions and safe harbour provisions.

Taking the average of US and European angel investor risk perceptions as indicative, investors are valuing reduced risk and uncertainty as a result of copyright limitations and exceptions at around $2 billion a year.[2]

[1] Booz&Co. (2012a) *The Impact of US Internet Copyright Regulations on Early-Stage Investment*. Available < http://www.booz.com/media/uploads/BoozCo-Impact-US-Internet-Copyright-Regulations-Early-Stage-Investment.pdf > and Booz&Co. (2012b) *The Impact of EU Internet Copyright Regulations on Early-Stage Investment*. Available < http://www.booz.com/media/uploads/BoozCo-Impact-EU-Internet-Copyright-Regulations-Early-Stage-Investment.pdf >

[2] Of course, risk perceptions vary and these figures are no more than suggestive of the risk premium that might be associated with Australia's inflexible exceptions, uncertainty and limited safe harbour protection in the minds of early stage investors. Nor do they say anything about the impact of the copyright regime on later stage investment and the locational decisions of established firms.

Productivity: Internet infrastructure as 'general purpose' investment

As von Lohmann argues, the US doctrine of 'fair use' operates as innovation policy within the copyright regime. It "creates incentives . . . to build innovative new products" and this "has yielded complementary technologies that enhance the value of copyrighted works" – as for instance in the case of search technology and Apple's iPod.

Considered together the following online innovators have a market capitalisation of over one trillion US dollars: Akamair, Apple, eBay, Facebook, Google, LinkedIn and Yahoo!. **Were they to operate from Australia, all these businesses would be at greater risk of liability for copyright violations than they are in countries with flexible copyright exceptions**.

Although those businesses also provide services to Australia, our lack of flexible copyright exceptions are likely to inhibit investment here as many of the services they provide can be provided from offshore. Further, although Australia has definite strengths in the area of internet technology and innovation,[3] our lack of flexible exceptions and safe harbour provisions reduces the chance of such businesses being founded and/or growing in Australia. We may have missed out in the past, and we will miss out on such opportunities in the future.

Being a 'general purpose' technology like the internal combustion engine or electricity, the internet enhances productivity throughout the economy. Much of this productivity growth is built on progressively finer divisions of labour. This process depends upon the openness of the internet and thrives on the reduction of latency and of its organisational equivalent – transactions costs. Flexible exceptions to copyright and adequate safe harbour provisions lower transactions costs.

We simulated an increase in productivity growth in the exceptions using industries of just one one-hundredth of its otherwise experienced growth in the three years from 2007 through 2010[4] – a very conservative estimate of additional growth. This additional growth would compound through time so that the increase in annual value added or the welfare gain to the Australian economy would be $593 million higher after ten years.

Given these benefits and the way in which any legal test defining the scope of a flexible exception would protect rights holders, there is every reason to *Except the Future*

[3] < http://www.abc.net.au/news/2012-04-19/high-tech-attracts-venture-capital/3959248?section=business >

[4] Note we adopt the convention here that the year 2007 refers to the financial year 2006-7 and 2010 to 2009-10 and, where official statistics are quoted, this convention is adopted throughout the report except where otherwise specified.

1.Introduction

The internet and related technologies are precipitating tremendous change. Technological change requires changes to institutions, but legal institutions are almost always adaptive, rather than radical. This may be well and good. We are not blessed with the ability to see into the future or all the consequences of our actions clearly. However the fact that law is adapting gradually means that we are a long way from the optimal legal framework for copyright on the internet.

Copyright is almost exactly 300 years old in English speaking countries. The Statute of Anne dates back to 1710. For the duration of the 'analogue age', which lasted until the late twentieth century, there was a clear distinction between creating and using a work and between handling, delivering and copying a work. These distinctions are now breaking down. Users are also producers. Handling and delivering anything online, be it content or services, generally cannot be done without copying and communicating.

As Weatherall (2011) noted:

> *... due to the nature of digital technology, just about any online or digital activity - such as reading an eBook or listening to a digital music file - involves making copies of copyright material into digital memory. Owing to the way reproduction is defined in Australian copyright law, most of these copies... require permission from the copyright owner or an exception. This is true even where equivalent acts offline (reading a book, listening to music) involve no infringement. Thus the reproduction right looms large as the ultimate leverage of rights holders to control virtually all aspects of how [internet intermediaries] run their businesses. Internet intermediaries are therefore likely to undertake many actions that fall within the reproduction right in Australia – and their users will too.*[1]

This situation is similar to the coming of air-travel to real property law (See Box 1).

[1] Weatherall, K. (2011) *Internet Intermediaries and Copyright: An Australian Agenda for Reform*, Australian Digital Alliance. Available < http://www.digital.org.au/our-work/publication/internet-intermediaries-and-copyright-australian-agenda-reform >

BOX 1:

NEW TECHNOLOGY AND LEGAL OBSOLESCENCE

Traditionally the right to airspace was governed by the doctrine: Cuius est solum, eius est usque ad caelum et ad inferos ("For whoever owns the soil, it is theirs up to Heaven and down to Hell.") Like trespass, this right of exclusion provided a workable framework.[2] With the onset of aviation however this right became impracticable. How could commercial aviation prosper if landowners could veto travel through patches of air-space far above their property?

For almost half a century, law makers and scholars wrestled with how to reconcile common law rules governing airspace with the advent of modern aviation.[3] The regulatory system 'muddled through'. In the US it wasn't until 1942, when an American chicken farmer sued the US Military for the impact their low-flying bombers had had on his chickens that a way forward was found. Ultimately, the Supreme Court upheld the farmer's complaint, agreeing that he did indeed have a right to the air above his land, and awarded him compensation. However in doing so the Court drew an important distinction between 'usable' and 'navigable' airspace, declaring that navigable airspace was a "public highway" for air travel and not under the exclusive control of landowners.[4]

In effect, the strict property rights implied by the ad caelum rule had been augmented with a set of governance rules, which in practice had converted navigable airspace into a regulated commons. In the years to come, these governance rules became more refined and precise, especially in response to the popularisation of condominiums in the 1960s. Without changing the underlying doctrine, new governance rules had adapted the property rights system to make it more compatible with a new technological reality, and the evolving needs of society.

A similar process of legal evolution applied in Australia and in the early 1950s Australian state governments began introducing similar regulation. The Damage by Aircraft Act, 1952 (N.S.W.) was the first of the State Acts. Section 2 reads:

> ***No action shall lie in respect of trespass or in respect of nuisance, by reason only of the flight of an aircraft over any property at a height above the ground, which, having regard to wind, weather, and all the circumstances of the case is reasonable, or the ordinary incidents of such flight, so long as the provisions of the Air Navigation Regulations are duly complied with.***

This study explores some of the key activities of internet intermediaries to quantify the contribution of copyright exceptions to the creation of economic value and to estimate the potential economic benefit to Australia from a more flexible copyright exceptions regime.

We begin by exploring the ways in which the internet has brought change and opportunity. Then, after looking at the value that the internet and internet intermediary activities bring to users, we look at the costs and benefits of licensing versus flexible exceptions, the impact of such exceptions on the incentive to produce, and the potential benefits of flexible exceptions and the extension of safe harbour provisions.

[2] The *ad caelum* rule also had its application below the ground, with the presumption that land owners had rights to the minerals their lands contained, with the exception of 'royal mines' - gold and silver, which remained vested in the Crown by virtue of Royal prerogative. However, in 1855, colonial parliaments in Australia legislated for ownership of nearly all minerals to be retained by the Crown, and this arrangement persists today.

[3] For a full discussion see: Banner, Stuart, (2008) *Who Owns The Sky? The Struggle to Control Airspace from the Wright Brothers On,* Harvard University Press

[4] For a full discussion see: Rule, Troy A, (2011) "Airspace in a Green Economy", *UCLA Law Review,* 59, p. 281.

BOX 2:

INTERNET INTERMEDIARIES

The OECD defines internet intermediaries as the companies and individuals who provide the internet's basic infrastructure and platforms by enabling communications and transactions between third parties as well as applications and services. Internet intermediaries give access to, host, transmit and index content originated by third parties or provide Internet-based services to third parties. They include:

- **Internet Access Providers: that provide access to the internet to households, businesses, and government (e.g. Telstra, Optus and iiNet). In Australia, the technical legal term carriage service provider includes this group (although the legal term also extends beyond the online environment).**
- **Internet Hosts: that transform data, prepare data for dissemination, or store data or content on the internet for others. This category would include traditional hosts and some software as a service or cloud computing operations and e-mail providers (e.g. Google Docs and Gmail).**
- **Search engines and portals: that aid online navigation by enabling end-users to find sites, objects, news or other content (e.g. Google, Ask and Yahoo!).**
- **E-commerce intermediaries: that enable online buying and selling, such as eBay or Amazon or, perhaps, App Stores like iTunes.**
- **Internet payment systems: that enable payments, such as Visa, PayPal etc.**
- **Participative networked platforms, or User-Created Content (UCC) Platforms, that do not themselves create, or own, the content being published or broadcast. These would include sites that host blogs, YouTube and similar sites, and social networking sites, such as Facebook and LinkedIn.**

Source: Weatherall, K. (2011) Internet Intermediaries and Copyright: An Australian Agenda for Reform, Australian Digital Alliance, citing OECD (2010) The Economic and Social Role of Internet Intermediaries, OECD, Paris.

2. The internet has brought pervasive change and with it new opportunities

The Internet and digital tools have upended the traditional hierarchical creation and distribution roles. Not only are content creators and users increasingly one and the same, but there is also an increasing blurring of the content and the mechanism of delivery. Delivering anything online, be it content or services, often simply cannot be done without copying and communicating.

2.1 Internet intermediary activities

Some of the most common internet activities, including search and indexing, caching and hosting, involve copying and communicating content, so these internet activities risk infringing Australian copyright law unless exceptions apply or the use is otherwise permitted.

2.1.1 SEARCH AND INDEXING

Web search engines work by storing information about many web pages, which they retrieve from the HTML code in which web-pages are written.[5] These pages are retrieved by a web crawler which is an automated program that browses the web and follows every link on a site. The contents of each page are then analysed to determine how it should be indexed (for example, words are extracted from the titles, headings or special fields called meta tags). Data about web pages are stored in an index database for use in later queries. Some search engines store all or part of the source page in a cache as well as information about the web pages.[6]

The purpose of an index is to allow information to be found as quickly as possible. When a user enters a query into a search engine (e.g. using keywords), the engine examines its index and provides a listing of best-matching web pages according to its criteria, usually with a short summary containing the document's title and sometimes parts of the text. The index is built from the information stored.

The usefulness of a search engine depends on the relevance of the results it produces for the user. While there may be millions of web pages that include a particular word or phrase, some pages may be more relevant, popular or authoritative than others. Most search engines employ methods to rank the results to provide the 'best' results first. How a search engine decides which pages are the best matches and what order the results should be shown in, varies widely from one engine to another.

Search engines provide a service both to end users, enabling them to more easily locate the information they need, and to internet content publishers, by making the information they publish more easily discoverable, thereby bringing users to their content. In internet search, content and the mechanism of delivery have blurred. Search engines copy and communicate content, but only do so in the course of enabling and facilitating its discovery and delivery.

[5] This outline is drawn from < http://en.wikipedia.org/wiki/Web_search_engine >

[6] Web publishers can request their content be excluded by the use of robots.txt code, which tells the search engine not to index this content.

2.1.2 CACHING

Web caching is the temporary storage of web objects (e.g. web pages) for later retrieval. There are three significant advantages to web caching:

- Reduced bandwidth consumption (fewer requests and responses that need to go over the network);
- Reduced server load (fewer requests for a server to handle); and
- Reduced latency (since responses for cached requests are available immediately, and closer to the client being served).

Together, they reduce costs and improve the performance of the internet.[7]

Caching is widespread. Most browsers use some form of caching on individual PCs, serving content locally when, for example, the user hits the back button or multiple pages from a site contain the same background images and content. Most ISPs and organisations of any size also use caching in an effort to reduce network traffic and speed up user access. These proxy caches work on the same principle, but at much larger scale, as there may be hundreds perhaps thousands of users behind them. Caches can also be placed in front of content servers (i.e. at the content originating end) to help manage traffic load at times of peak requests for popular content.

In recent years web pages have become more dynamic, now often being assembled in real time in response to individual requests in order to tailor content to a user's location or target advertising. This has made caching more difficult. As a result of this, and a range of technical reliability and security issues, the last 10 years or so have seen the emergence of content delivery networks (CDNs), which are in essence a more complex form of caching that rather blur the distinction between caching and hosting.

[7] This outline is drawn from < http://www.web-caching.com/welcome.html >

BOX 3:

AKAMAI TECHNOLOGIES

Akamai Technologies arose at MIT and began a commercial service in 1999. Based on mathematical solutions to internet traffic and security issues, Akamai has become one of the world's largest content delivery networks (CDNs).

Akamai provides a service to companies that have content on the Internet (Akamai's customers), to more efficiently deliver this content to users browsing the web and downloading content. Akamai does this by transparently mirroring content from customer servers - sometimes all site content, and sometimes just media objects such as audio, graphics, animation and video. Though the domain name is the same, the IP address points to an Akamai server or another user's machine that Akamai is using as a server, rather than the customer's server. The Akamai server is automatically picked depending on the type of content and the user's network location.

The Akamai Network is one of the world's largest distributed computing platforms, with more than 95,000 secure servers equipped with proprietary software deployed in 71 countries. These servers reside within approximately 1,900 of the world's networks monitoring the internet in real time – gathering information about traffic, congestion and trouble spots. Akamai uses this intelligence to optimise routes and replicate data dynamically to deliver content and applications more quickly, reliably, and securely.

Akamai's customers include many of the major content sites (e.g. iTunes Store, QuickTime movies, BBC iPlayer, Facebook, Amazon, Twitter, Netflix, and many more).

Sources: http://www.akamai.com/html/technology/index.html, http://video.mit.edu/watch/the-akamai-story-from-theory-to-practice-9092/ and http://en.wikipedia.org/wiki/Akamai_Technologies.

A CDN is a large distributed system of servers deployed in multiple locations on the internet to serve content from a local server to end users with high availability and high performance.[8] Today CDNs serve a large fraction of internet content, including web objects (e.g. text, graphics, URLs and scripts), downloadable objects (e.g. media files, software, documents), applications (e.g. e-commerce, portals), live streaming media, on-demand streaming media and social networks. CDN operators are paid by content providers, such as media companies and e-commerce vendors, to deliver their content to their audience of end users. In turn, a CDN pays ISPs, carriers and network operators for hosting its servers in their data centres.

In addition to better performance and availability, CDNs also offload the traffic served directly from the content provider's origin infrastructure, resulting in cost savings for the content provider, and giving the content provider a degree of protection from denial of services (DoS) attacks, by using their large distributed server infrastructure to absorb the attack traffic.

[8] This outline of CDNs is drawn from < http://en.wikipedia.org/wiki/Content_delivery_network >

While there are many challenges in managing caches and CDNs well, they can have advantages for everyone:

- Users can benefit through faster access with reduced waiting (latency);
- ISPs and other organisations can benefit through reduced bandwidth and traffic costs; and
- Web publishers and content owners can benefit because their content is more readily accessible and they do not need to invest as much in server infrastructure to handle peak loads. Reduced latency at the user end can be particularly important for web content publishers as slow response and delays turn users away from sites, especially e-commerce sites.

As in the case of search, while content is copied and communicated it is only done for the purpose of facilitating delivery.

2.1.3 HOSTING

There are many types of internet hosts, including web hosts, commercial and user generated content hosting, social networks, software as a service and cloud computing services. All host content, make it available and facilitate its delivery to users.

- Web hosts may simply provide an always-on platform for individuals and smaller organisations, so that they can make their web site available 24/7 using a shared infrastructure with higher connection speed than might be affordable for the individual organisations themselves. Most ISPs and many other more specialist web hosts provide such services.
- File storage hosts provide a platform for users to store information, making it available 24/7 from any location, providing off-site security and enabling sharing of files among work, family or social groups. This can include documents, photos, videos, and other content. Examples include Dropbox or FilesAnywhere, Flickr or Photobucket, and YouTube or Vimeo.
- Social networks also host content, including user-generated content, adding a range of network services that enable users to communicate and share. Examples include Facebook, Twitter and LinkedIn.
- Cloud services also host content, providing a more complete range of services to users, from file storage to software as a service. There are many cloud services providers. Dropbox, iCloud, Google Docs and Gmail are examples of the fast burgeoning world of consumer cloud services.

An important advantage of hosting can be in facilitating the operation of much smaller portable devices that may not have sufficient storage capacity in their own right, but can access cloud hosted content. The advantages for users include access and storage in a more convenient, secure and less expensive way than they might be able to manage individually, as well as a range of additional sharing, management tools and services.

2.2 Copyright and intermediary activities

While intermediaries perform a vital function, as Weatherall notes with some understatement,[9] their position under Australian copyright law makes Australia "a less conducive investment environment for Internet Intermediaries than competitor countries".

1. ***Reproduction Rights:*** Due to the way that digital technology functions, almost all digital activity involves copying material into digital memory. The way reproduction is currently defined in Australian copyright law, such copies are potentially a breach of copyright, and internet intermediaries and their users could be held accountable. At its extreme, it becomes analogous to a postal company being held liable for delivering the material of a pirate publishing house.
2. ***Communication Rights:*** Internet intermediaries are currently at risk of being considered "joint communicators" of copyright material, though the legal position remains unclear. Under Australian copyright law, it is the person responsible for determining the content of the communication who communicates the material. The very recent Full Court of the Federal Court decision in the Optus Now case finding that Optus was solely or jointly responsible for making recordings of free to air broadcasts chosen by its subscribers, has intensified uncertainty as to the extent of liability of cloud service providers in Australia.[10]
3. ***Authorisation liability:*** Australian law creates the risk of secondary liability for a wider range of activities than in other countries, particularly the US, but also Canada and the UK. In contrast to the Sony doctrine in the US, which limits liability for the provision of devices with substantial non-infringing uses, Australian authorisation liability still focuses on whether the entity has taken "reasonable steps" to prevent infringement. As Weatherall argues, if judgement is based on an assessment of whether intermediaries have done enough to prevent infringement, then predicting the outcomes of potential litigation becomes "extraordinarily difficult."

Consequently, Australian internet intermediaries face higher risks of both direct and indirect liability for copyright infringement in circumstances where liability would not be imposed in comparable countries. As a result, the current copyright regime in Australia is likely to be discouraging innovation and investment in intermediary activities and in the digital economy more broadly.

[9] Weatherall, K. (2011) *Internet Intermediaries and Copyright: An Australian Agenda for Reform*, Australian Digital Alliance. Available < http://www.digital.org.au/our-work/publication/internet-intermediaries-and-copyright-australian-agenda-reform >

[10] See Optus loss could stifle future cloud innovation in Australia, Media release, Australian Digital Alliance, 27th April, 2012, available at < http://www.digital.org.au/media/media-release-optus-loss-could-stifle-future-cloud-innovation-australia > National Rugby League Investments Pty Limited v Singtel Optus Pty Ltd [2012] FCAFC 59 (27 April 2012) available at < http://www.austlii.edu.au/au/cases/cth/FCAFC/2012/59.html >

2.3 Economic implications and the rationale for change

Because many digital services can be provided at a distance, the relative cost (including risk) of different national copyright systems for investors and entrepreneurs, including content producers, intermediaries and users, affects the location of investment. From an economic perspective, the key issue is to strike a balance between the incentive to create content and the opportunities for intermediaries and users to innovate, with the economic policy task being to jointly optimise their surplus.

To encourage innovation and investment we need a flexible copyright regime for intermediary activities that:

- Does not unduly reduce the revenue of rights holders and/or content producers, and so reduce the incentive to create content; and
- Minimises the overall activity costs and transaction costs of publishers, intermediaries and users.

We know that things continue to change. Not only is the recent past a lesson in the limitations of accommodating new technology by making a string of specific exceptions for known intermediary activities, but the approach can also be expected to continue to fail us in the future. **Specific exceptions will always be playing catch-up and new innovative intermediary activities welcomed by the public will still be at risk from copyright. Hence, we need a flexible exception for internet intermediary activities, as well as an extension of safe harbour provisions to intermediaries.**

The economic rationale for granting exceptions or limitations to copyright and extending safe harbour provisions is a function of the negligible costs (including risks) that doing so entails, together with the benefits to which it can give rise. More specifically, the merit of doing so is a function of:

- the lack of a downside (indeed the overwhelming likelihood of net upsides) for almost all rights holders;
- high transaction costs associated with licensing (e.g. where there are a very large number of potential rights holders);
- lower costs and risks for all stakeholders;
- the likelihood of innovation and industry development advantages; and
- the wider benefits that can flow to the productivity of copyright-using industries.

This study explores some of the key activities of internet intermediaries, including search and index, caching and hosting, through the lens of these economic criteria. The aim is to quantify the contribution of flexible copyright exceptions to the creation of economic value, and estimate the potential economic benefit to Australia from a more flexible copyright exceptions regime.

3. The value of intermediary activities

The activities of internet intermediaries (e.g. search and indexing, caching and hosting) provide value to internet users. We should facilitate them wherever possible, particularly when there is no cost to others and potentially significant wider benefits.

We can think of the value of internet services in various ways. Firstly, the value people attribute to the internet must be at least equal to the value they place on the time they spend on it. Secondly, we use the internet to reduce costs elsewhere – for instance to reduce our costs of searching for information, banking or buying airline tickets – and these savings can be evaluated. Finally, some consumers would be prepared to pay more to access the net than they do pay. This 'consumer surplus' can be estimated. We look briefly at each, first establishing the necessary base data for estimation, and then using it to estimate these various forms of economic value.

While the approaches are different, the things being measured are different, and studies were conducted at different times, the results paint a consistent picture. They show the enormous value of the internet to Australian users, and the value of various forms of web content and services facilitated by internet intermediary activities.

3.1 Use value

Use value measures the time users spend on particular activities and then values that time. For internet users, use value can be estimated from the number of intermediated activities performed and the time spent performing them. Surveys of internet activity at home and at work show that internet use is both increasing rapidly and changing in its nature. Hence, such surveys provide no more than snap-shot estimates of use value. Moreover, such estimates are silent on the value of the information discovered through searching online or of communicating via social networks.

Estimates of internet activity vary as the methods of data collection and analysis vary, and levels of activity vary between countries and change rapidly over time. In mid-April 2011, Nielsen reported that Australian users now average 21 hours and 42 minutes a week online, up from 17 hours and 36 minutes in 2009.[11] Search and navigation were reported to account for around 3% of time spent online at the end of 2010, portals for 17% and social networking for a further 21%.[12]

Looking at global internet use, Go-Gulf report that 92% of internet users have used the internet for sending e-mails and for using search engines, 83% for getting more information related to health or hobbies, 82% for searching directions, 81% for getting weather information, 78% for information on new products, 76% for reading news, 72% for entertainment and

[11] < http://www.theaustralian.com.au/media/net-users-logged-on-21-hours-a-week/story-e6frg996-1226036913878 >

[12] < http://thenextweb.com/au/2011/10/20/has-australias-interest-in-social-media-peaked-new-comscore-data-suggests-it-may-have/ >

71% for online shopping. Social networking is the most time consuming activity. An average internet user spends around 22% of their time on social networking sites, 21% on searches, 20% on reading content, 19% on e-mails and communication, 13% on multimedia sites and 5% on online shopping.[13]

The ACMA Communications Report 2010-11 presented an overview of Australia's online activities, noting that:

- Australians spent an average of 36 hours online during June 2011 (from home), a total of 443 million hours during the month nationally.
- There were 19.2 billion web pages viewed from home during June 2011, by 12.3 million people. Of these, Google search accounted for 9.8 million page views and Google image search a further 3.6 million, and Facebook accounted for 7.6 million page views.
- During June 2011, 8.6 million Australians accessed social network and user generated content sites from home. A total of 36 million hours were spent on Facebook alone.[14]

While incomplete, these data give a sense of the user time spent and value of specific online activities (e.g. search and social network hosts).

For user time, we can estimate the value of an hour spent at work from average weekly wages reported by the Australian Bureau of Statistics (ABS). Deighton et al. (2009) noted that there is no market price for an hour spent in recreation or leisure, although there is an opportunity cost. If work time is discretionary, then it has been argued that the wage rate measures the opportunity cost of leisure time. If not, and in particular for people in school, the elderly or unemployed, the wage rate over-estimates the value of a leisure hour.[15] To account for this, we adjust the average wage rate to take account of the percentage of working age population in Australia (67%) and labour force participation (65%), and so we use 44% of the wage rate to value leisure time. Average weekly earnings in Australia were $1,034 in November 2011, or around $26 per hour for a 40 hour week.[16]

If 12.3 million Australians spent an average of 36 hours online per month from home during June 2011, then at 44% of the wage rate, their online time would be worth around $60 billion a year circa 2011.

- With 21% of online time spent on search, navigation and portals, pro rata the use value of search for Australian home internet users would be equivalent to $12.6 billion a year.
- With 22% of online time spent on social networks, pro rata the use value of social network hosting for Australian home internet users would be equivalent to $13.2 billion a year.

[13] http://www.go-gulf.com/blog/online-time

[14] ACMA (2011) *Communications Report 2010-11*, ACMA, Canberra. Available www.acma.gov.au

[15] Deighton, J. and Quelch, J. (2009) *Economic Value of the Advertising-Supported Internet Ecosystem*, Report to the Interactive Advertising Bureau, June 2009. Available < http://www.iab.net/insights_research/947883/economicvalue >

[16] ABS (2012) Average Weekly Earnings, Australia. Cat No 6302.0.

3.2 Activity time and cost savings

Activity cost savings arise as online activities enable efficiencies (e.g. online shopping and bill payments).

Deloitte Access Economics (2011) explored the benefits of the internet for Australian households in terms of time saved and efficiency gains, and they suggested that **the annual value to the Australian economy that accrues to households from accessing the internet was $53 billion circa 2010** (i.e. close to the use value estimate when the earlier date is taken into account). This comprised four elements:

- ***Search:*** The ability to search for information more efficiently on the internet was estimated to be worth the equivalent of $500 per person a year, or $7 billion in total nationally.
- ***Variety:*** The increase in the variety of goods and services available online across major online retail spending categories was estimated to be worth $16 billion a year to Australians.
- ***Convenience:*** The internet saves people a substantial amount of time performing necessary everyday tasks like banking, paying bills and dealing with government. Assuming a typical internet user saves around half an hour each week, the estimated value of this benefit to consumers is $8 billion a year.
- ***Recreation:*** Consumer gains from recreational use of the internet were estimated to be around $2,000 for the average person, equivalent to $22 billion a year nationally.[17]

Updating the Deloitte Access Economics numbers to the end of 2011 to take account of increased use, suggests that search would be worth around $11.5 billion a year (i.e. very close to the use value estimate).

3.3 Contingent value and consumer welfare

There have been a number of attempts to measure the value of internet content and services using contingent valuation and welfare economics techniques. Contingent valuation is based on surveys of users, asking how much they would be willing to pay; and consumer welfare or surplus is the amount that consumers would have been willing to pay for something over and above what they did pay.

McKinsey & Company (2010) reviewed previous studies that had attempted to value the internet and undertook their own survey-based analysis (using contingent valuation/state preferences and conjoint analysis).[18]

Looking at the value of a wide range of internet services, they estimated the consumer surplus to be close to EUR 100 billion in the US and IAB Europe countries,[19] or approximately EUR 40 per month per household (Figure 1).

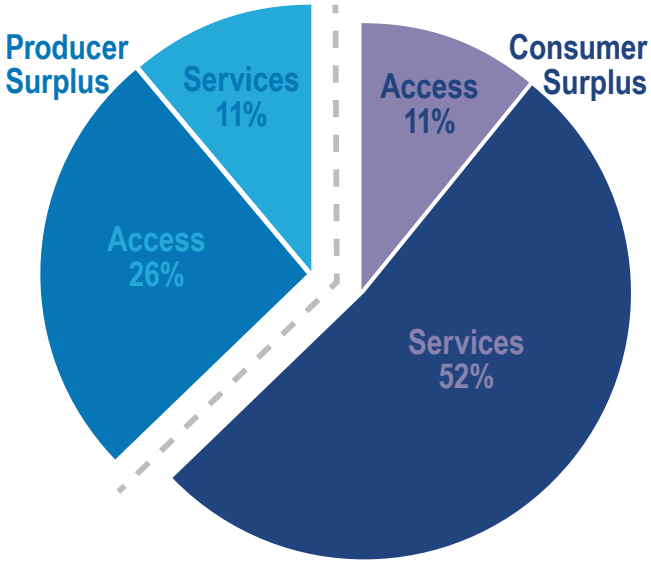
McKinsey also found that four services generated more than 50% of the total surplus in 2010: mail (16%), search (15%), social networks (11%) and instant messaging (10%). They also estimated that, after subtracting what they pay, the surplus derived by users who pay for web services was similar to that derived by other users – perhaps suggesting that the pay versus free mix may be close to optimal.

[17] Deloitte Access Economics (2011) *The Connected Continent*. Available < http://www.deloitte.com/au/connectedcontinent >

[18] McKinsey & Company (2010) *Consumers driving the digital uptake: The economic value of online advertising-based services to consumers*, Report to the Interactive Advertising Bureau (Europe), September 2010. Available < http://www.iab.net/insights_research/947883/consumers_driving_digital_uptake >

[19] IAB Europe includes: France, Germany, Russia, Spain, the UK, Austria, Belgium, Bulgaria, Croatia, Denmark, Finland, Greece, Hungary, Italy, Netherlands, Norway, Poland, Romania, Slovakia, Sweden, Switzerland and Turkey.

FIGURE 1: INTERNET SURPLUS (EUR 190 BILLION PER YEAR, 2010)



Note: Refers to the US and IAB Europe countries.

Source: McKinsey & Company (2010) Consumers driving the digital uptake: The economic value of online advertising-based services to consumers, Report to the Interactive Advertising Bureau (Europe), September 2010.

Given the similarity of results across the US and European countries studied, it is possible to use these figures to estimate values for Australia. We use an exchange rate of EUR 0.70 to the dollar, making the EUR 40 per household a month figure approximately $57 a month or $686 a year.

With 8.5 million households in Australia in 2011, on a simple *pro rata* basis, the estimated consumer surplus generated by web services would amount to more than $5.8 billion a year, of which:

- Search would generate around $8.60 per household per month, or $875 million a year;
- Social networks would generate around $6.30 per household per month, or $645 million a year; and
- All hosting activities (excluding e-mail) would generate around $1.2 billion a year.

Focussing specifically on search, Bughin et al. (2011) extended the McKinsey study.[20] They estimated the value of each search performed at 50 cents, which given Comscore's estimation of 1.3 billion searches in Australia in 2010, would imply a value of around $650 million a year. While the exact shares differed between the countries surveyed, taking the approximate average shares of the developed countries would suggest that individual users and businesses would each realise around $175 million of that total.

Taking a different approach, Bughin et al. (2011) then estimated the use value of search to knowledge workers, based on the share of knowledge workers in the workforce (approx. 40%), the time spent by knowledge workers searching (approx. 5 hours a week or 12% of their time), and the average weekly wage. For Australia, that would imply a value of around $590 million a year.

[20] Bughin, J. et al. (2011) *The Impact of Internet Technologies: Search*, McKinsey & Company. Available < http://www.mckinsey.com >

BOX 4:

THE VALUE OF CACHING

Caching reduces latency and the call on network resources, but by how much and to what benefit is difficult to say. Nevertheless, as an example, we look at scenarios relating to the user time cost of latency and possible additional traffic costs.

User time cost of latency: As noted, the ACMA reported that there were 19.2 billion web pages viewed by Australians from home during June 2011. If caching reduces the waiting time for each page by an average of 1/2 a second, then at the discounted average weekly wage the user time cost of latency would have been around $360 million a year circa 2011. However this is clearly a substantial underestimate as reduced latency increases use and fosters innovation.

Additional traffic cost: Consultations suggest that total traffic demand out of Australia is currently around 800 Gbps per month. Around 80% of that traffic is to the US. The internet share of that traffic is around 80%, and around 60% of that is cachable. If caching had a 35% success rate, the potential capacity saving would be around 108 Gbps per month. Combining domestic and international traffic costs suggests a cost of around $35 per Mbps per month, implying a traffic cost saving of $3.8 million per month or $45 million a year.

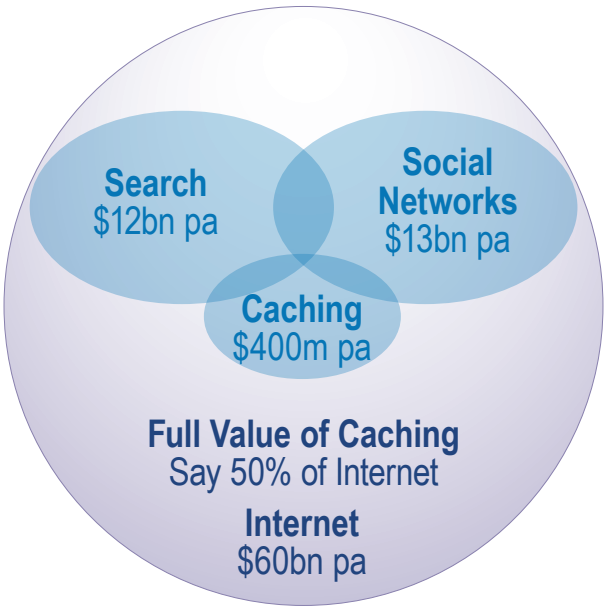
The estimates above massively underestimate the true value of caching to the internet which, in its various forms, has become ubiquitous and multi-layered. If we compare the internet we have with multi-layered and sophisticated caching to its equivalent without caching, the latter would be crippled in its operation and, with all the loads placed on it today, not unlike the internet of the mid-1990s in which there were frequent outages and users sometimes found themselves waiting minutes rather than seconds for the delivery of content.

The full value of caching is thus the value of the internet we have today less the value of a crippled internet working slowly, poorly and being prone to failure. Consequently, at the upper bound, one could attribute much of the entire value of the internet to caching.

Source: Lateral Economics' analysis.

FIGURE 2:
THE USE VALUE OF THE INTERNET AND INTERMEDIARY ACTIVITIES (WITH INDICATIVE FULL VALUE OF CACHING)

Source: Authors' analysis.



More recently, BCG (2012) adopted a contingent valuation approach to estimate the value of online media to Australian household internet users (i.e. the value of the content rather than the mechanism of delivery). They suggested that online media was worth $24 billion a year in consumer surplus to Australians, or $3,882 per connected internet household. They also suggested that $9.2 billion a year of this came from online content portals.[21]

While they measure different things, taken together, these studies show the very considerable value to users of online activities and related internet intermediary services.

[21] BCG (2012) *Culture Boom: How Digital Media are Invigorating Australia*. Available < http://www.bcg.com/expertise_impact/publications/PublicationDetails.aspx?id=tcm:12-101244 >

4. The costs of licensing versus flexible exceptions

Keys to the extraordinary explosion of value on the internet has been its openness and the way in which that openness has permitted the driving down of transactions costs. Here is one of the architects of the internet, Vinton Cerf (2006), stressing the uniqueness and importance of this fact:

> *Because the network is neutral, the creators of new internet content and services need not seek permission from carriers or pay special fees to be seen online. As a result, we have seen an array of unpredictable new offerings … [E]ntrepreneurs need not worry about getting permission for their inventions will [sic] reach the end users … This is a direct contrast to closed networks like the cable video system, where network owners control what the consumer can see or do.*[22]

The effect of this new open network has been extraordinary. The speed and volume of communications has increased by a factor of a million or more since the early 1990s, with a corresponding proliferation of information.[23] Jio Ito proposes the counterfactual of establishing Google in a closed network. Without open source software one would need millions of dollars to create the software on a proprietary operating system. "It would have required a huge team of people taking many years. Since it was a 'search engine' it most likely would have been given to the phone company to design and run. . . . This total project probably would have taken a decade and cost a billion dollars and would probably not even have worked properly."

In fact, the total cost of actually building and launching the first Google server was probably only thousands of dollars using standard PC components, mostly open source software as the base and connecting to the Stanford University network which immediately made the service available, at no additional cost, to everyone else on the Internet.

The open standards and the small pieces loosely joined had created an ecosystem of components and networks that dramatically lowered the cost of development, collaboration and delivery. This allowed people to innovate, launch, fail, connect, mashup and remix in such an efficient way and at such low cost, that the center of innovation moved from the research laboratories of the giant companies to the startup and venture capital scene in Silicon Valley.

Of course, there were startups and venture capitalists before the Internet, but the influence and scale of this new engine of innovation was unprecedented. The Internet continues to disintermediate and disrupt sector after sector by lowering friction and enabling interoperability.[24]

[22] Quoted in Lee Robin S. and Wu, Tim, 2009. "Subsidizing Creativity through Network Design: Zero-Pricing and Net Neutrality", *Journal of Economic Perspectives*, Volume 23, Number 3, Summer 2009—Pages 61–76, at p. 66.

[23] Quiggin, John. 2012, "The Economics of New Media", School of Economics and School of Political Science and International Studies, RSMG Working Paper Series, Working Paper: P12_1 University of Queensland.

[24] *Joi Ito, Creative Commons: Enabling the next level of innovation*, McKinsey and Co, What Matters, 30 October 2009. < http://whatmatters.mckinseydigital.com/internet/creative-commons-enabling-the-next-level-of-innovation or http://tinyurl.com/yapz9mf >

It is important that rights holders' ability to control and exploit their work not be undermined, but so also it is important that our system of copyright law be configured for the new reality of the internet. It sounds entirely reasonable that rights holders should give permission for anyone to copy their work, but as we have seen, any digital process handling their work in any way – including to assist the rights holder in exploiting their work – involves copying. A postal service is not required to obtain the rights holders' permission to transport their content. As this section of the report demonstrates, where law that developed in the analogue world is applied to the digital world of the internet it gives rise to a cascade of permissions which is not just impracticable but dramatically so.

4.1 The licensing transaction value chain

One way of exploring the issue of potential copyright licensing costs is to look at the activity and transaction costs for stakeholders in the value chain (i.e. content publishers and/or rights holders, intermediaries and users), and explore the impacts of alternative ways of managing permissions and licensing activities.

PwC (2011) outlined a simple transaction cost approach that looks at the activity and transaction costs for stakeholders in the value chain and explores the impacts of alternative ways of managing permissions and licensing activities. Figure 2 illustrates the economic framework PwC apply to considering individual copyright exceptions. It shows that exceptions will be beneficial where transaction costs are high and the impact on rights owners' expected income is low or zero.[25]

PwC (2011) suggested that:

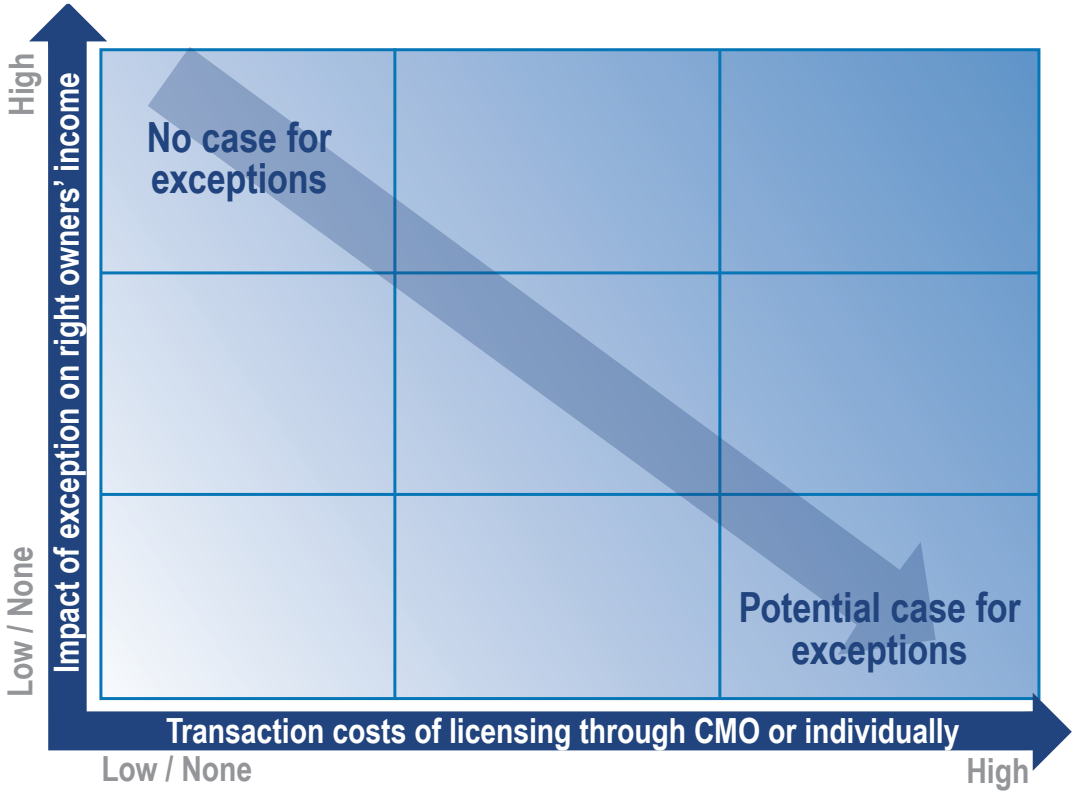
> *This framework is useful in considering the case of Google's core search engine business model. Considering the horizontal axis, the number of websites on the internet and the continual stream of new additions mean that the transaction costs associated with licensing the reproduction of works are likely to be high. Whilst these transaction costs may potentially be lowered through the development of a central rights management organization representing website creators, they would still be likely to remain high. This suggests the economic case for an exception for the core search engine function. The vertical axis is more challenging to evaluate. Google is able to monetise the content of the websites it copies as its search functions drive traffic and so revenues from advertising and, increasingly, other revenue streams. The assessment that would need to be made is whether these revenues are sufficiently large to justify the transaction costs of Google licensing with rights owners for internet content.*[26]

We argue that this latter point is not a relevant consideration on the following page.

[25] PwC (2011) *An economic analysis of copyright, secondary copyright and collective licensing*, Price Waterhouse Coopers, pp52-54.

[26] PwC (2011) *An economic analysis of copyright, secondary copyright and collective licensing*, PwC, p54.

FIGURE 3: ILLUSTRATIVE EXCEPTIONS EVALUATION FRAMEWORK



Source: PwC (2011) An economic analysis of copyright, secondary copyright and collective licensing, Price Waterhouse Coopers, p53.

The following sections develop and apply this framework. The analysis is based on a simple value chain that includes content publishers and rights holders, internet intermediaries, and users. We look at each in turn, first establishing the base data for estimation and then estimating transaction costs using the PwC approach.

Before doing so, it is worth highlighting that the framework as expressed excludes the possibility – which is clear here – for exceptions which lower the risk to the search provider and so underpin investment in search, to *promote* the interests of rights holders rather than simply failing to damage them. While one might want to constrain search providers from providing material that could offer an alternative source of content for their users, the provision of search should be strongly presumed to be in rights holders' interests, and indeed is what underpins the investment in search engine optimisation by which firms seek to maximise their visibility on search engines.

4.1.1 ONLINE CONTENT PUBLISHERS AND RIGHTS HOLDERS

There are various indicators of the number of publishers and rights holders and the content available online, including the number of internet hosts and domains. The following data on hosts and domains are from OECD (2011).[27]

- ***Hosts:*** A host is a machine or application connected to the internet and identified with a unique IP address. While there are technical limitations to host surveys (e.g. some may be hidden behind firewalls), they provide a sense of network growth and accessibility. In January 2010, there were more than 730 million hosts worldwide, up from just over 70 million in 2000 or by 26% a year. There were almost 12.7 million hosts in the .au (Australian) country-code domain, up from 1 million in 2000 or by 28% a year. Of course, there will have been additional Australian hosts under global top level domain names (e.g. .com).

- ***Domain names:*** Domain name registrations are an indicator of web presence and the wish by those with a web presence to be easily recognisable. Worldwide, there were almost 200 million domain name registrations in mid-2010, up from little over 100 million in 2006. Domain name registrations under the .au (Australian) domain increased from 148,539 in 2000 to almost 1.8 million in 2010, or by 28% a year compared with worldwide growth of just over 20% a year. Of course, domain names can also be registered under global top level domains, and in mid-2010 there were more than 2 million Australian domains registered under global top level domains, in addition to the almost 1.8 million under the .au country-code domain - making a total of 3.8 million registered domain names from Australia (approximately 2% of the worldwide total).

Each of these indicates something about the amount of content and number of content producers and rights holders.

Taking domains as approximating the number of content publishers,[28] and hosts as approximating the locations (addresses) of content, these indicators suggest that there are around 200 million online content publishers worldwide at 730 million addresses, of which almost 4 million content publishers are in Australia at around 15 million addresses.

4.1.2 INTERNET INTERMEDIARIES

Internet intermediaries are many and varied. Here we focus on search and indexing, caching and hosting activities.

- ***Search*** *services* involve spidering, indexing and often caching and displaying a copy of content in order to direct would-be users to the content and services they seek. By making content discoverable, search services tend to increase traffic at the content publishers website, potentially

[27] OECD (2011) *OECD Communications Outlook 2011*, OECD, Paris. Available < http://dx.doi.org/10.1787/comms_outlook-2011-en >

[28] Note that this methodology is subject in some cases to hugely *under*-estimate of the number of 'publishers' as many sites – such as YouTube are platforms for thousands of different publishers.

increasing their revenue, and reduce the search and discovery time and costs faced by users. There are reported to be more than 170 general web search engines, and there are many more specialist search activities.[29]

- ***Caching*** aims to provide users with faster access to commonly used content and reduce network traffic. Without caching there would likely be more local and international traffic, slower access and an increase in user access time, and a need for greater infrastructure investment. Caching is widespread among internet access and services providers, and many other businesses, organizations and educational institutions throughout the economy, making it difficult to estimate the number of caching operations.
- ***Hosts***, be they operators of social networks or cloud services, provide platforms for social and professional communication, photo and video sharing, the commercial exchange of content, goods and services, and for information handling and storage efficiency. Wikipedia lists around 225 active social network sites, and there are many hundreds of file storage, cloud services and other specialist hosts.[30]

There were around 500 ISPs operating in Australia in June 2010, so for the purposes of preliminary estimation we assume that there are around 1,000 internet intermediaries providing caching, search and hosting services in Australia.

4.1.3 INTERNET SUBSCRIBERS AND USERS

There are a number of ways to count internet use, including subscribers (i.e. people of business entities holding an internet access account) and users (i.e. people accessing the internet during a given period).

For subscribers, OECD (2011) reported that there were 292 million fixed broadband and 453 million wireless broadband subscribers in OECD countries in June 2010, of which just over 5 million fixed and 10 million wireless subscribers were in Australia.[31] ABS (2012) report 11.6 million internet subscribers in Australia in December 2011, of which more than 8.9 million were household subscribers and almost 2.7 million were business and government subscribers.[32]

Looking more broadly at users, including people who may not be subscribers, ACMA (2012) reported that there were 12.3 million Australians accessing the internet from home during June 2011, while InternetWorldStats report almost 2.3 billion internet users worldwide at the end of 2011, of which 19.5 million were in Australia.[33]

[29] < http://www.philb.com/webse.htm >

[30] < http://en.wikipedia.org/wiki/List_of_social_networking_websites >

[31] OECD (2011) *OECD Communications Outlook 2011*, OECD, Paris. Available < http://dx.doi.org/10.1787/comms_outlook-2011-en >

[32] ABS (2012) *Internet Activity, Australia, Dec 2011*, 81530DO006_201112.

[33] < http://www.internetworldstats.com/ >

4.2 Transaction cost estimates

As noted, PwC (2011) outlined an activity cost model for centralised and atomised content licensing that includes content producers/ rights holders, intermediaries and users, and explores the costs associated with identification, negotiation and use activities. They also tabulate the associated cost estimates (Table 1), showing rights holders and intermediary/user copyright licensing activities as a transaction chain, with activity, frequency of that activity and estimated time involved. This provides a basis for preliminary estimates of possible activity and transaction costs facing internet intermediaries and rights holders in Australia.

TABLE 1: PWC'S COPYRIGHT LICENSING ACTIVITIES TRANSACTION CHAIN

ACTOR	TRANSACTION	ACTIVITY	FREQUENCY	TIME	COST BASE
Rights holder	Responds to user's contact	Responds to e-mail/receives telephone call to arrange date and time for discussion	One-off	30 minutes	Average earnings
Rights holder	Negotiation with user	Negotiates the price and terms of the copyright licence with the user	Annual	3 hours	Average earnings
Rights holder	Invoices user	Draws up an invoice on a word processing application and sends to user over e-mail	Annual	30 minutes	Average earnings
Rights holder	Receives and processes payment	User sends payment through PayPal and Author logs on to receive funds and transfers into bank account	Annual	30 minutes	Average earnings
Intermediary User	Searches for the rights holder	Involves an in-depth search using different means if necessary including contacting publishing groups as well as searching for creator directly and contacting other agencies	One-off	1 hour	Average earnings
Intermediary User	Makes contact with the rights holder	Writes e-mail/undertakes a telephone call to arrange date and time for discussion	Annual	30 minutes	Average earnings
Intermediary User	Negotiation with rights holder	Negotiates the price and terms of the copyright licence with the rights holder	Annual	3 hours	Average earnings
Intermediary User	Undertakes payment	Receives invoice through e-mail and sends payment through PayPal	Annual	30 minutes	Average earnings

Source: Based on the analysis of PwC (2011) An economic analysis of copyright, secondary copyright and collective licensing, pp75-76.

For preliminary estimation we use the activity parameters in Table 1, in combination with the following:

- ABS report average weekly wages in Australia in November 2011 of $1,034, which at 40 hours per week is around $26 per hour;
- Taking domain name registrations as indicative of the number of online content publishers, we estimate the number of content rights holders in Australia at 3.8 million (200 million worldwide); and
- Based on ACMA reporting that there were more than 500 ISPs operating in Australia at the end of June 2010, we estimate the number of internet intermediaries providing caching, search and hosting services (i.e. users in the PwC schema) in Australia at 1,000.

With large numbers of content publishers and intermediaries involved in such transaction activities, even transactions with modest costs involved lead to very high transaction costs.

Simply looking at Australian based intermediaries and content publishers, if all 1,000 intermediaries sought individual licenses from all 3.8 million potential content publishers, there would be 3.8 billion transactions. Given transaction activities taking 9.5 hours at $26 per hour, the transaction costs would exceed $900 billion a year in Australia alone. If all the internet intermediaries in the world sought individual licenses to Australian content, the transaction costs would be in the trillions, not billions, and probably more than the annual production of the Australian economy.

In fact internet intermediaries rely largely on presuming that rights holders wish intermediaries to handle (and thus copy) their content especially since many intermediaries automate the process by which rights holders can opt out of the process. Yet relying on such an informal process involves greater risks for intermediaries under Australian copyright law than it would if we had more flexible exceptions and broader safe harbour provisions.

If the 170 search engines listed at << www.philb.com/webse.htm >> transacted with all 3.8 million Australian domain name registrants, it would involve 645 million transactions. If each transaction took 9.5 hours, then, at average weekly wages, the transaction costs would exceed $150 billion a year. And that is just for the Australian domain names.

Turning now to caching activities, given their extent, licensing costs relating to caching by non-intermediaries might be higher. There are, for example, around 2.2 million businesses and around 200,000 not-for-profit organisations in Australia. If just 10% of them performed some form of caching, their transaction costs for individually licensing Australian content would be many times greater than those of intermediaries. Again, if all the 'cachers' in the world sought individual licenses, the cost would be well into the trillions.

When it comes to hosting and cloud services, internet intermediary activities are ubiquitous. The number of content producers in the user generated content era is large.[34] Bughin et al. (2011) reported that across the countries they surveyed between 30% and 60% of all internet users generated content.[35] If 30% to 60% of Australian internet users were treated as content owners, the potential transaction cost of individual licensing by internet intermediaries for the purposes of hosting could exceed $2 trillion a year.

What these estimates clearly suggest is that the cost for an internet intermediary of gaining absolute confidence that they are not breaching copyright is prohibitive.

Of course, in future some more centralised and/or automated way may be found to do the necessary licensing at a relatively lower cost. The fact that this has not already happened suggests that its costs could outweigh its benefits. Indeed the benefits could be negligible, and the costs substantial.

This seems particularly likely when one considers that even if a centralised licensing system were instituted, for instance via a collecting society, there would still be the problem of distribution of funds which in the case of the internet is layered and highly complex. In the schools context in Australia there has been some attempt to do this – and CAL and the schools have been completely unable to agree on a way to identify which rights holders wish to be paid leading to a scenario where the website copyright terms are inspected, website by website.

The current architecture of copyright establishes an 'anti-commons' or property rights thicket which cannot be negotiated without exorbitant cost. The concept of the thicket was popularised by Michael Heller in his book *The Gridlock Economy,* which details the way in which normal commerce can be severely impeded by property rights which are too numerous and/or too diffusely defined to enable businesses to cost effectively navigate them confident that they are not infringing others' property rights.

[34] While it is true that in the case of user generated content, some form of explicit or implicit licensing of content takes place at the point of sign-up, in the absence of exceptions or extension of safe harbour provisions this is not likely to be sufficient to afford certainty of protection.

[35] Bughin, J. et al. (2011) *The Impact of Internet Technologies: Search*, McKinsey & Company. Available < http://www.mckinsey.com >

BOX 5:

CRIPPLING TRANSACTION COSTS AND THE ORIGINAL ROBBER BARONS

During the middle ages, the Rhine River through modern-day Germany was one of the great trade routes of Europe. Under the auspices of the Holy Roman Empire, certain feudal lords and the church were allowed to set up 'toll-gates' along the river. These came in the form of strategically placed castles and towers along the river's length, many with large iron chains spanning the width of the river. Selected feudal lords and arch-bishops charged each cargo ship a toll, either in a standardised amount of silver coin, or an 'in-kind' payment from the merchant's wares.

For many centuries the system worked. Merchants were granted safe passage down the river, and the tolls were simply another cost of doing business. However, during the Great Interregnum of 1250-1273, when there was no Roman Emperor and the grip of the Roman Empire loosened, the number of tolling stations exploded. So-called 'Robber Barons' erected their own castles and towers in between the officially-sanctioned stations, and began collecting their own, often arbitrary, tolls.

The effect on trade was crippling. The cost of doing business simply became too great, and the merchants stopped coming. Everybody suffered. It was not until the accession of Emperor Rudolf of Habsburg, who was willing to raze castles in order to put a stop to robber barony that the flow of trade returned to the Rhine River.

Michael Heller argues that rights thickets threaten prosperity in a range of areas in the contemporary West, most particularly in the area of intellectual property rights.

Source: Heller, Michael, 2008. The Gridlock Economy,: Too much ownership wrecks markets, stops innovation and costs lives, New York, Perseus.

As illustrated in Box 5, rights thickets can be crippling where rights holders and users are adversaries. However the situation with internet intermediaries is different. In effect they are providing the service to the rights holders. Thus rights holders are not normally in a position to charge them for the privilege of distributing their content. The result is that the rights thicket that contemporary Australian copyright law creates is largely honoured in the breach. Businesses mostly go about their daily routines either unaware of the risks the law is imposing on them, or being prepared to bear the risk that a rights holder will pursue them for some failure to obtain permission.

4.3 The impacts on incentive to produce

A critical aspect of the legal test of flexible exceptions is to have regard to rights holders' ability to exploit their rights. This introduces a built in protection against opening any floodgates that undermine rights holders' rights and so the incentive to create. In fact, the most likely impact on rights holder revenue resulting from such exceptions would be positive – from greater innovation and investment in content delivery.

BOX 6:

FAIR DEALING VS FAIR USE: THE CASE OF *KELLY V ARRIBA SOFT*

In Australian law the exceptions to copyright that permit people to use copyrighted material without permission are focused around the "fair dealing" exceptions. These are limited to five statutory purposes – research or study, parody or satire, criticism or review, and reporting on the news and use for the purposes of judicial proceedings or legal advice.[36] Further, as Weatherall and Hudson have argued, these exceptions have tended to be applied in an *ad hoc* and restrictive ways.[37]

In contrast, the fair use exception in the US arose from the common law around the Statute of Queen Anne, though it was later codified in the American Copyright Act 1976 (17 U.S.C. § 107). This alternative jurisprudence of 'fair use' has provided a much more open ended and flexible doctrine which nevertheless protects rights holders exploitation of those rights.

Under the doctrine a use is "fair" considering the following tests:

1. **the purpose and character of the use, including whether such use is of a commercial nature or is for non-profit educational purposes;**
2. **the nature of the copyrighted work;**
3. **the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and**
4. **the effect of the use upon the potential market for or value of the copyrighted work.**

The American case of *Kelly v Arriba Soft* provides an illustration of the flexibility of fair use and the corresponding rigidity of our fair dealing exceptions. In that case, Kelly, a professional photographer selling photographs on his website, objected to Arriba Soft presenting low-resolution thumbnail images on its internet search engine. The Ninth Circuit Court of Appeals found that showing the thumbnails in no way interfered with Kelly's market and that constituted a fair use of the material.

Yet as Weatherall and Hudson argue,[38] if such a case were before an Australian court there are no grounds for bringing Arriba's activities within *any* of the statutory purposes in the fair dealing exception. This is unnecessarily restrictive particularly given the current rate of technological innovation. As such, it simply impedes technological innovation within Australia for no discernable benefit to rights holders' interests.

[36] Van Caenegem, W (2010), *Intellectual Property Law in Australia* Kluwer Law International, p48

[37] Weatherall, K and Emily Hudson (2005). *Response to the Issues Paper: Fair Use and Other Copyright Exceptions in the Digital Age* Available at: < http://works.bepress.com/kimweatherall/6 > (downloaded 4/5/2012)

[38] Weatherall, K and Emily Hudson (2005). *Response to the Issues Paper: Fair Use and Other Copyright Exceptions in the Digital Age* Available at: < http://works.bepress.com/kimweatherall/6 > (downloaded 4/5/2012)

A great deal of online content is in the form of free-to-use website information and promotional material put online for the purposes of enabling search and contact, access and downloading by agencies and people motivated to do so as a part of the role or job. There is also content made available on a paid access basis, with the payments received playing a part in the motivation to produce.

Internet intermediary activities such as search, caching and hosting have no direct impact on the revenue from, and thereby incentive to produce, such content. If anything, search and indexing will make the content more useful and discoverable and so should increase traffic to the content, including paying customers. As such, **the impact of search and indexing on rights holders' income and thereby their incentive to produce is more likely to be positive than negative**.

In assessing the impact of a search-related exception on rights holders' income, PwC (2011) suggested that it was more challenging to evaluate because Google is able to monetise the content of the websites it copies as its search functions drive footfall and so revenues from advertising and increasingly, other revenue streams. They suggested that the assessment that would need to be made is whether these revenues are sufficiently large to justify the transaction costs of Google licensing with rights owners for internet content.[39] However their analysis seems to miss a key point.

Google search (like other search services) generates revenue from providing the intermediary activity of search - by helping people find content, which they can then go to. Search services do not generate revenue from the content itself. You cannot watch an AFL game on Google. You must navigate from the search to the content site, at which you may need to subscribe or pay to view.

Hence, **the level of revenue a search service provider generates from advertising has nothing to do with the potential revenue of the rights holders or the incentive to produce content**. It does not take revenue away from rights holders, but rather generates revenue from the intermediary service of search itself, with the search provider benefiting only from any share they can 'monetise' of the value their search services add.

The case for exceptions to copyright lies in the balance of costs and benefits. Here the transaction costs of compliance with copyright are high and the potentially negative impact of rights holders' revenue and, thereby, the incentive to produce is very low or negative depending on the circumstances. For internet intermediaries the transaction costs of compliance are literally prohibitive, and the impact on rights holders' revenue is more likely to be positive than negative.

[39] PwC (2011) *An economic analysis of copyright, secondary copyright and collective licensing*, PwC, p53.

5. The benefits of flexible exceptions and extension of safe harbour provisions

The benefits of flexible exceptions and extension of safe harbour provisions lie not so much in additional gains in use, as much already takes place. Rather it is in reducing risk and uncertainty, which can have a substantial impact on investment and innovation.

While there are many possible costs and benefits associated with granting flexible exceptions and extending safe harbour provisions, here we focus on:

- the risks and costs associated with legal challenges;
- the impacts of these risks on investment (i.e. how much does risk affect willingness to invest); and
- the potential impacts on innovation.

5.1 Risks and costs associated with legal challenges

This section explores copyright-related legal costs, the number of copyright-related cases brought and the probability of litigation under different regimes.

5.1.1 COPYRIGHT-RELATED LEGAL COSTS

Relatively little is known about the legal cost associated with Australia's copyright regime. The costs of litigation include court fees (which are generally public) and the costs incurred by the parties (which are generally not publicly available). Courts make orders for costs, but: (i) such orders are not made in every case – often this is the subject of negotiations and settlement; and (ii) where a court does make an order, it will likely not reflect the full costs incurred. In general, a costs order will be <60% of costs actually incurred. Moreover, even these costs (whether negotiated or ordered) will only reflect the direct costs (e.g. the costs of lawyers etc.), they will not include indirect costs (e.g. the opportunity costs involved in the sacrifice of staff time to the litigation). Furthermore, it has to be noted that costs are often given as an estimate for the cost of going to trial, but, on average, only somewhere between 5% to 10% of cases will in fact go to trial.

5.1.2 THE NUMBER OF COPYRIGHT-RELATED CASES

The number of cases arising is also better known in the US than in Australia. Most copyright cases in Australia run in the Federal Court, while a small number run in the Federal Magistrates' Court. The Federal Court does not produce statistics to indicate how many copyright cases are filed each year, but it does produce statistics on the number of IP cases – which include trade mark cases and patent cases, as well as any other rights such as geographical indications. Our consultations suggest that it would be reasonable to estimate that around one-third of IP cases are copyright cases. Even if this overstates the number of copyright cases, it should be noted that it does not count the number of cases in the Federal Magistrates' Court; nor does it include proceedings in the Copyright Tribunal, which, although a non-judicial body, hears and determines disputes, some of which are very long and complicated, concerning the payment to be made for copyright uses under statutory licences – some of which would involve uses that might be covered by a flexible exception. There were around 200 IP cases in Australia each year over the last five financial years,[40] of which perhaps 70 per year would be copyright cases.[41]

[40] Federal Court of Australia, Annual Report 2010-2011, p. 144. Report available at < http://www.fedcourt.gov.au/aboutct/ar2010.html >

[41] We have based this on the opinion of a practitioner in the field.

TABLE 2: COPYRIGHT CASES IN THE US AND AUSTRALIA, 2006-2011

	COPYRIGHT CASES		CASES PER USD BILLION GDP		CASES PER MILLION POPULATION	
	Australia	US	Australia	US	Australia	US
2006-2007	73	5,488	0.09	0.41	3.5	18.4
2007-2008	71	5,074	0.07	0.36	3.3	16.8
2008-2009	66	3,346	0.06	0.23	3.1	11.0
2009-2010	65	2,780	0.07	0.20	2.9	9.0
2010-2011	66	1,984	0.07	0.14	3.0	6.5
Average	68	3,734	0.07	0.27	3.2	12.3

Source: Australian Federal Court IP cases, assuming 1/3rd are copyright cases, and http://www.us-ip-law.com/2011/11/where-or-where-did-copyright-litigation.html

At around $144,000 each,[42] 70 copyright-related cases a year would suggest legal costs in Australia of $10 million a year. The opportunity and other related costs would likely be larger, as might settlements and awards.

5.1.3 PROBABILITY OF LITIGATION

One could argue that the introduction of fair use exceptions would increase the amount of litigation in Australia. It would not be very surprising if flexible exceptions involved more legal costs in the US than our fair dealing exceptions do here, not just because of the greater cost and litigiousness of the US legal system but also because fair use exceptions have done so much more legal *work* than our tightly subscribed fair dealing exceptions. Where it only made sense to litigate our exceptions where the narrow definitions were somehow unclear – particularly in the presence of new technology – US fair use exceptions played a critical role in permitting major innovations on the internet in the United States – such as internet search technology and Apple's iPod.[43]

Given this, even if legal costs rose on the introduction of a flexible exception in Australia, those costs would be dwarfed by the downstream benefits to the economy explored below. However, there are reasons to doubt that introducing a flexible exception would lead to higher legal costs. The US fair use doctrine has delivered flexibility and room for innovation with relatively low rates of litigation (Beebe 2008).[44]

[42] This figure derives from the figure used from the House of Representatives report quoted above adjusted for inflation.

[43] Further most firms will not be pushing the boundaries of a flexible exception. Most will simply gain greater security around activities which clearly fit the fair use exception. Only leading edge innovators or large scale users (such as education) are likely to bear the legal costs of testing the fair use test.

[44] Beebe, B. (2008) An Empirical Study of U.S. Copyright Fair Use Opinions, 1978-2005, *University of Pennsylvania Law Review*, 156(3). Available < http://www.bartonbeebe.com/documents/Beebe%20-%20Empirical%20Study%20of%20FU%20Opinions.pdf.>

By contrast our own much more tightly defined fair dealing exceptions have relatively frequently been litigated. With rapid technological change, defining exceptions with excessive specificity can increase uncertainty as stakeholders seek to determine whether specific exceptions apply to new technologies.

It is not difficult to think of recent cases in copyright that concerned themselves largely with either the fine details of Australia's specific exceptions (e.g. Optus TV Now and the Panel case from 2005/06) or with conduct that could fairly readily be addressed under a flexible exception (e.g. the generic pharmaceutical company sued for infringing copyright in TGA-approved product disclosure/information statements).[45] As Weatherall and Hudson note:

> *In a rapidly changing technological environment, the search for certainty through specificity – the attempt to define exceptions within an inch of their lives – is destined to fail. Beyond a certain point, specificity leads to more uncertainty for most stakeholders in the copyright system, because it is unclear whether specific exceptions apply to new technologies or analogous uses".*[46]

The Optus TV Now case provides another even more recent example with the case being reversed on appeal suggesting how unsettled the law is.

5.2 Risk and investment

Perception of risk plays an important part in investment decisions of all kinds, and can be particularly important in start-up and early stage investment by entrepreneurs, angel and venture capital (VC) investors.

Recent studies by Booz & Co (2012a, 2012b), explore the impact of changes to copyright regulations on early stage investment in internet or digital content intermediaries (DCIs). Both reports explore the impacts of four scenarios: the ease of obtaining licensing agreements; the complexity in existing laws and related uncertainty; greater prosecution of end users in violation of copyright law; and holding websites liable for copyright infringement.

In essence, both reports look at the cost of reducing the flexibility of exceptions and safe harbour provisions, and increasing uncertainty (i.e. the opposite of what is being examined in this report). Consequently, their evidence suggests proxy valuations for reducing risk and uncertainty, and extending flexible exceptions and safe harbour provisions for internet intermediaries.

Based on a survey of angel investors and interviews with venture capitalists, Booz & Co (2012a, 2012b) found that investors were highly averse to a regime that increases the costs of compliance or the uncertainty of the size of damages in the event of non-compliance. Moreover, changes in copyright regulations that would increase liability for either users or

[45] *Sanofi-Aventis Australia Pty Ltd v Apotex Pty Ltd* (No. 3) [2011] FCA 846. In this case the defendant manufactured a generic version of a drug that was out of patent and reproduced the disclosure/information statements from the company that originated the drug and had been the beneficiary of the (expired) patent . The copyright act has since been changed to allow such reproductions. It is highly likely that this issue would have been dealt with more simply under a fair use exception as the copying of the generic company could not conceivably have had an impact on any market for the copyright work.

[46] *Op Cit*, p. 6.

websites (hosts) would have a negative impact on investment. In summary:

- Eighty per cent of the US and 87% of the European angel investors surveyed said that they are uncomfortable investing in an area with an ambiguous regulatory framework.
- The pool of investors interested in investing in internet content intermediaries would increase by nearly 111% in the US and 19% in Europe if copyright regulations were clarified to allow websites (e.g. hosts and ISPs) to resolve legal disputes quickly, thereby lowering their cost to comply with regulations. Limiting penalties for websites acting in good faith would increase the pool of interested investors by 115% in the US and 32% in Europe.
- Making it easier to hold users liable for uploading content without licenses would reduce the pool of interested investors by 48% in the US and by 49% in Europe. In order to overcome their reluctance under such circumstances, investors would demand an expected return of an additional 12 times their original investment in the US and 7 times their original investment in Europe.
- Making it easier to hold websites (e.g. hosts and ISPs) themselves liable for unlicensed content uploaded by users (e.g. through limiting safe harbour provisions) created an 81% decline in the pool of interested investors in the US and a 68% decline in Europe. In order to overcome their reluctance under such circumstances, investors would need an expected return of an additional 20 times their original investment in the US and 8 times their original investment in Europe.
- When angel investors were asked to choose an investment under a variety of conditions involving a range of investment factors, the results suggested that 47% of their investment decision is driven by the legal environments in the US and 38% in Europe.[47]

While angel and venture capital (VC) investment may not be as large in Australia, it is still significant. In 2011, VC and later stage private investment in Australia amounted to around $8.7 billion, of which almost $1.3 billion (15%) went into "IT, media, electronics and communications" activities.[48] Angel investment was said to be around $500 million in 2007.[49] If IT, media, electronics and communications activities account for a similar proportion of angel investment as VC and later stage investment, then angel and VC investment in these activities in Australia is worth around $1.4 billion a year.

We are unable to determine how much of this investment is focused on internet intermediary activities, or might be so focussed under a different copyright regime. However, if just 10% of current angel and VC investment going into IT, media, electronics and communications activities were targeting internet content intermediaries, then following the Booz studies, investors would be looking at an average return worth around $407 million a year (i.e. 3x their original investment).[50]

[47] Booz&Co. (2012a) *The Impact of US Internet Copyright Regulations on Early-Stage Investment*. Available < http://www.booz.com/media/uploads/BoozCo-Impact-US-Internet-Copyright-Regulations-Early-Stage-Investment.pdf > and Booz&Co. (2012b) *The Impact of EU Internet Copyright Regulations on Early-Stage Investment*. Available < http://www.booz.com/media/uploads/BoozCo-Impact-EU-Internet-Copyright-Regulations-Early-Stage-Investment.pdf >

[48] ABS (2012) *Venture Capital and Later Stage Private Equity, Australia, 2010-11*. Cat No 5678.0.

[49] < http://www.startup-australia.org/angel-investment >

[50] According to estimates by the Kauffman Foundation, the average return on angel investments is roughly 3x. Cited in Booz&Co. (2012a) *The Impact of US Internet Copyright Regulations on Early-Stage Investment*. Available < http://www.booz.com/media/uploads/BoozCo-Impact-US-Internet-Copyright-Regulations-Early-Stage-Investment.pdf >

If making it easier to hold websites liable (e.g. by reducing exceptions and safe harbour protections) made them seek an additional 20 times their original investment in the US and 8x in Europe, then:

- In the US, early stage investors are valuing the risks associated with reducing exceptions and safe harbours protections at the equivalent of $2.7 billion a year in Australia (i.e. an additional 20 times return on investment); and
- In Europe they are valuing that risk at the equivalent of $1.1 billion a year in Australia (i.e. an additional 8x return on investment).

Taking the average of US and European angel investor risk perceptions as indicative, investors are valuing reduced risk and uncertainty as a result of copyright limitations and exceptions at around $2 billion a year.

Of course, risk perceptions vary and these figures are no more than suggestive of the risk premium that might be associated with Australia's inflexible exceptions, uncertainty and limited safe harbour protection in the minds of early stage investors. Indeed, the difference between the US and European samples suggests that the additional return sought in order to overcome their reluctance and return to such investments depend on availability of alternative investment candidates.

It is clear from the annual reports of internet intermediaries that the complexity and uncertainty of copyright, as well as difficulties and expense of centralised or atomised licensing are often cited among the risk factors facing business development and expansion. Pandora Media provides one example.[51] The previously mentioned Akamai Technologies provides another. Under the standard heading of "Risk Factors" in US Securities and Exchange Commission annual reporting, the Akamai Technologies 2011 Annual Report says:

> *We may need to defend against patent or copyright infringement claims, which would cause us to incur substantial costs.*
>
> *Other companies or individuals, including our competitors, may hold or obtain patents or other proprietary rights that would prevent, limit or interfere with our ability to make, use or sell our services or develop new services, which could make it more difficult for us to increase revenues and improve or maintain profitability. Companies holding Internet-related patents or other intellectual property rights are increasingly bringing suits alleging infringement of such rights against both technology providers and customers that use such technology. Any such action naming Akamai could be costly to defend or lead to an expensive settlement or judgment against us.*
>
> *We have agreed to indemnify our customers if our services infringe specified intellectual property rights; therefore, we could become involved in litigation brought against customers if our services and technology are implicated.*

[51] See, for example, Pandora Media < http://investor.pandora.com/phoenix.zhtml?c=227956&p=irol-stockQuote >. Indeed, typing < http://www.pandora.com/ > into your browser in Australia to view Pandora's apology to Australians for not being able to supply services to them is in itself instructive.

Any litigation or claims, whether or not valid, brought against us or pursuant to which we indemnify our customers could result in substantial costs and diversion of resources and require us to do one or more of the following:

- *Cease selling, incorporating or using products or services that incorporate the challenged intellectual property;*
- *Pay substantial damages and incur significant litigation expenses;*
- *Obtain a license from the holder of the infringed intellectual property right, which license may not be available on reasonable terms or at all; or*
- *Redesign products or services.*

If we are forced to take any of these actions, our business may be seriously harmed. In the event of a successful claim of infringement against us and our failure or inability to obtain a license to the infringed technology, our business and operating results could be materially adversely affected.[52]

This kind of statement is common (e.g. Apple Inc. makes a similar statement relating to its iTunes Store). Such statements have an effect on investor sentiment.

The relative risks under different national regimes will also affect the locational decisions of established firms, who, other things equal, will favour lower risk locations, particularly where they are using innovative approaches.

5.3 Risk and innovation

Citing the UK's NESTA, PwC (2011) comments on the "paucity of evidence linking IP (including copyright) and innovation", though it acknowledges that it has an influence.[53] However, the impact on early stage investment (discussed above) is substantial, and there is extensive evidence of the contribution of angel and VC investment to innovation.

In addition to injecting capital, angel investors often play a hands-on role, providing entrepreneurs with mentoring, business advice and contacts. VCs also often play a hands-on role in the companies in which they invest. Given the key role that angels and VCs play, not only in funding new companies but also in working with them to promote their success, their continued willingness to invest is critical to the future creation and growth of new companies.[54]

Among the relatively few studies exploring the relationship between VC investment and total factor productivity (TFP), the study by Bertoni et al (2010) found that VC investment had a beneficial effect on firm level TFP, with VC-backed firms revealing higher TFP than non-backed firms. Interestingly, their large six-country European sample included 492 internet firms, and of the industry groups analysed, the difference between the TFP performance of VC-backed and non-backed firms was greatest among internet firms.[55]

[52] Akamai Technologies (2012) *Annual Report 2011*, pp15-16. Available < http://www.akamai.com/dl/investors/akamai_annual_report_11.pdf >

[53] PwC (2011) *An economic analysis of copyright, secondary copyright and collective licensing*, PwC, pp. 24.

[54] Booz&Co. (2012) *The Impact of EU Internet Copyright Regulations on Early-Stage Investment*. Available < http://www.booz.com/media/uploads/BoozCo-Impact-EU-Internet-Copyright-Regulations-Early-Stage-Investment.pdf >

[55] Bertoni, F., Colombo, M.G., D'Adda, D. and Murtinu, S. (2010) Venture capital financing and innovation in European New Technology-Based Firms: a longitudinal analysis on the role of the type of investor, CONCORD 2010. Available < http://iri.jrc.ec.europa.eu/concord-2010/papers/bertoni_colombo.pdf >

6. Investment and innovation

Investment and innovation exhibit 'path dependence'. Clusters of activity, knowledge, entrepreneurial spirit and business practices develop over time, and such a cluster formed in one era can continue and grow into the next.

Innovation and investment clusters develop as people with specific skills and investors come together to mutually benefit. Entrepreneurial clusters emerge, where it becomes the norm to apply knowledge and form a start-up venture. Investment can also develop around particular activities in a particular location.

The copyright regime is one of the framework conditions for investment and innovation. Its importance can depend on the nature of the activities and as outlined in this report, it is very important for internet intermediary activities.

The US has become a hotbed for the development of the internet, including online services. As von Lohmann argues, the flexibility of the fair use exception has operated as innovation policy within the copyright regime because it "creates incentives . . . to build innovative new products" and this "has yielded complementary technologies that enhance the value of copyrighted works".[56]

It is notable how important the US's flexible copyright exception, fair use, has been in enabling many of the most pioneering and remunerative innovations of the age of ICT. For example:

- ***Apple:*** Established in 1977, Apple has evolved from a producer of computers into a leader in the consumer electronics industry. From the garage, Apple has grown into the largest technology firm in the world, posting annual revenues of USD 108 billion during 2011, a gross profit of almost USD 44 billion and current market capitalisation of over USD 500 billion. In late 2011, Apple had approximately 60,400 full-time equivalent employees. One example of reliance on fair use is the Apple iPod.[57]
- ***Facebook:*** Facebook is a social networking service launched in February 2004. As of April 2012, Facebook had more than 900 million active users. In 2011, Facebook's revenue was USD 3.7 billion and it employed more than 3,000 people. Following it's recent IPO Facebook is valued at over $60 billion.[58] Facebook provides a platform for user generated content that relies on safe harbours and often fair use.
- ***Google:*** First incorporated as a privately held company in September 1998, its initial public offering was in August 2004. In 2011, Google posted annual revenue of USD 38 billion, with a net income of almost USD 10 billion. Current market capitalisation is USD 194 billion. Google employs over 30,000 people. Google has been estimated to process more than one billion search requests every day, and its search technology grew in reliance on fair use and safe harbours.

[56] Fred von Lohmann, 2008. "Fair Use as Innovation Policy", *Berkeley Technology Law Journal*, Vol. 23:1.

[57] Technologies to assist in legitimate online consumption of creative works like iPod and e-readers have paved the way for creators to receive higher proportion of sales as royalties than they receive elsewhere. See Knopper, Steve, 2001. "The New Economics of the Music Industry: How artists really make money in the cloud – or don't", October 25 available at < http://www.rollingstone.com/music/news/the-new-economics-of-the-music-industry-20111025#ixzz1y9RKsF5R >

[58] < http://en.wikipedia.org/wiki/Facebook_Inc >

- ***Yahoo!:*** Yahoo! was incorporated in 1995. Its main web presence was initially as an online search engine but it diversified into a web portal offering a variety of online services. In 2005 Yahoo! acquired Flickr for an estimated $35 million. Yahoo!'s revenue for 2011 was around $4.4 billion and it currently has a market capitalisation of around $19 billion.[59] Its services, including search, have evolved in an environment that includes fair use and safe harbours.

In addition, these instances of reliance on fair use establish ground rules within which other business have felt comfortable operating, spurring further innovation and investment.

In Australia, all these businesses may be exposed to increased risk of copyright violations were they to operate their services from here. Australia has some definite strengths in terms of attracting investment,[60] and it is cutting off our nose to spite our face not to give our businesses a fair chance by making the domestic environment as conducive as possible to investment in pursuit of internet services.

With no flexible exception and limited safe harbour protections there is substantially more legal risk to such services in Australia than in the US and in comparable countries seeking ICT investment in the region, such as Singapore.

6.1 Productivity: Internet infrastructure as 'general purpose' investment

The internet is a 'general purpose' technology investment like the internal combustion engine or electricity. It is the foundation for enhancing the productivity of large sectors of the economy. If domestic production is more efficient than imports, disadvantaging local suppliers with an inefficient legal regime will impose avoidable costs on our economy and lower Australian living standards.

Not only may imports cost more than local supply, but in many areas of internet infrastructure, imports provide lower service quality. Being supplied from further away, response times are slower as signals must pass to a computer on another continent and then back again. This can increase delay or latency from around 60 milliseconds to around ten times that amount.

These losses can be expected to be dynamic because they degrade the quality of internet service available in Australia and they place Australian internet service providers and others that rely on them at a competitive disadvantage to providers elsewhere.

Much of the explosion of productivity to which the internet has already given rise[61] and which will continue to build, involves finer and finer divisions of labour. This process depends upon the openness of the internet, and thrives on the reduction of latency and its organisational equivalent – transactions costs.

[59] << http://en.wikipedia.org/wiki/Yahoo! >>, << http://en.wikipedia.org/wiki/Flickr http://investing.businessweek.com/research/stocks/earnings/earnings.asp?ticker=YHOO:US >>

[60] < http://www.abc.net.au/news/2012-04-19/high-tech-attracts-venture-capital/3959248?section=business > and see also Lateral Economics, 2011, *The potential for cloud computing services in Australia*, A study commissioned by the Macquarie Telecom at < http://www.lateraleconomics.com.au/outputs/The%20potential%20for%20cloud%20computing%20services%20in%20Australia.pdf >

[61] See Dolman, B., Parham, D. and Zheng, S. 2007, "Can Australia Match US Productivity Performance?", Productivity Commission Staff Working Paper, Canberra.

BOX 8:

WHERE DOMESTIC INTERNET INVESTMENT BOOSTS DOWNSTREAM PRODUCTIVITY

Tele-surgery provides a clear example of an application that is highly intolerant of latency delays and so requires domestic investment. Tele-surgery brings surgical expertise to remote areas and underserved populations, helps healthcare providers make better use of expert surgeons, improves surgical outcomes and reduces costs. However, network bandwidth, network latency and jitter are obstacles to the widespread use of this technology. Of great importance to the success of tele-surgery is the round-trip latency from the issuing of a robotic control signal to the resulting video displayed at the surgeon's site. This essentially determines the safety of tele-surgery. If the robotic control signal gets delayed, it will result in a delayed action of the surgical robot. By contrast some other areas of medicine require high bandwidth but are not sensitive to latency – for instance remote and round the clock diagnosis of CAT scans, MRI and radiography.

6.2 Quantifying productivity gains from flexible exceptions

It is conservative to assume that more flexible exceptions would lift the productivity growth rate of industries relying on limitations and exceptions to copyright by at least one one-hundredth. We have used two methods to illustrate the gains more flexible exceptions would provide.

First we looked at Australian Bureau of Statistics (ABS) data.

- The ABS reports productivity data for 16 sectors, including three that partially correspond to industries depending on limitations and exceptions (see *Exceptional Industries* the companion report to this one). These are the information, media and telecommunications sector; arts and recreation services; and the professional, scientific and technical services sector.
- Together these sectors' indexes of gross value added based multi-factor productivity (measuring their contribution to economic growth) increased by an average 1.2% a year between 2000 and 2010. This far exceeded overall growth which averaged just 0.03% a year.
- If productivity growth had been just one one-hundredth more, then at constant levels of input, industry value added would have been almost $837 million higher. It is important to note however that the ABS data and hence this figure, reflects just a portion (indeed less than 50 per cent) of the sectors that depend on limitations and exceptions as delinieated in *Exceptional Industries*.

Second we used the data from *Exceptional Industries.*

- We simulated a scenario in which the industries relying on limitations and exceptions as delinieated in *Exceptional Industries* experienced growth that was just one-hundredth more than the rate of growth they experienced in the three years from 2007 through 2010.
- Had this occurred this would have generated:
  - a $227 million increase in industry income; and
  - a $138 million increase in aggregate industry value added which, given that it has been funded by productivity growth, is a net gain to Australian economic wellbeing.
- This additional growth would compound through time so that after ten years the income of the limitations and exceptions industries would be $1.2 billion higher, and value added or the welfare gain to the Australian economy would be $593 million higher. The cumulative additional value to the Australian economy would be $3 billion.

This productivity growth is attributable to providing flexible exceptions and more could be seen by extending the safe harbours to the activities of internet intermediaries.

With flexible exceptions and extension of safe harbours, Australia is more likely to attract investment (including infrastructure such as data centres) and promote innovation than under the current regime, and at negligible cost (indeed most probably with gains) to copyright content production in Australia. As such, the economic case for more flexible exceptions is made.

When combined with the wider benefits, there is every reason to *Except the Future*.

About the authors

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