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Makers Empire: Australian Copyright Law, 3D Printing, and the 'Ideas Boom'

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MAKERS EMPIRE:
AUSTRALIAN COPYRIGHT LAW,
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Introduction

In Australia, there has been a high adoption of 3D printing in respect of art, craft, design, and science.¹

There has been an interest in integrating 3D printing into government policies in respect of education, innovation, and manufacturing. There has been an increasing concern about the need to boost Australia’s national and science technology policy and performance. Of particular concern has been the decline in Australia’s manufacturing industries. Much like the United States,² there has been a hope in Australia that 3D printing will revive Australia’s advanced manufacturing capacities. As Guy Rundle observed, there has been much interest in the manufacturing hubs of 3D printing in the United States.³ The ‘America Makes’ program has

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involved the creation of advanced manufacturing hubs to stimulate innovation – particularly in regions of the United States, which have suffered from economic depression. There has been an interest in emulating this innovation model in Australia. There has also been a deep problem in terms of the commercialisation of technology in Australia – with many inventions languishing in the so-called ‘Valley of Death’. The Australian Prime Minister Malcolm Turnbull has promoted an innovation agenda as leader of the Conservative coalition of the Liberal Party and the National Party. He has highlighted the role of 3D printing. For instance, Turnbull promoted the work of Stephen Brinks from 3D Brink at Western Sydney University. The education, innovation, and manufacturing initiatives in the United States have certainly attracted interest and attention in Australia.

In 2015, the then Minister for Industry, Innovation and Science, the Hon. Christopher Pyne, has highlighted the key role of 3D printing for manufacturing and material science in Australia: ‘Manufacturing remains a key driver in our economy, but as the industrial landscape changes, the sector needs to transition to more innovative and economically viable technology.’ Pyne stressed: ‘Emerging technologies such as metal 3D printing offer huge productivity gains and have the potential to turn Australia's manufacturing industry on its head.’ He hoped that the establishment of the CSIRO Lab 22 Innovation Centre would provide Australian companies

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4 America Makes, <https://www.americamakes.us/>


8 Ibid.
with access to 3D printing technologies for the nation’s manufacturing sector: ‘The centre will enable manufacturers to innovate with less capital investment risk - one of the major barriers in adopting 3D metal printing.’ 9 He noted that CSIRO had a strong record of creating innovative 3D printed products with industry partners. Pyne observed that products CSIRO had created included a mouthguard for treating sleep apnoea (with dental company Oventus), customised lugs (with bike manufacturer Flying Machine) and titanium heel bone and rib implants (with biomedical device manufacturer Anatomics). He concluded that additive manufacturing technology would have a range of benefits: ‘This technology centre will enable for product customisation and the ability to make complex metal parts, speeding up the development while also reducing waste and bringing down labour costs.’ 10

The Coalition Government has published a National Innovation and Science Agenda called the ‘Ideas Boom.’ 11 As one of its case studies, the Australian Government has highlighted the example of Makers Empire – which received support and investor backing to achieve its vision of teaching kids to design for 3D printing. 12 The company has the following pitch:

Makers Empire helps today’s students get ready to thrive in the future. A future where global collaboration, design thinking and problem solving will continue to be essential for successful, enriching lives. 13

9 Ibid.
10 Ibid.
13 Makers Empire, <https://www.makersempire.com/about_us>
The company has been particularly focused upon providing 3D printing for schools and education. Anthony Chhoy of Makers Empire promised: ‘If we can use this technology in the right context, you are changing the student’s world because it is these students who are going to change the world with this technology in the future.’ He observed: ‘We are helping prepare these young students for the jobs of tomorrow.’ There has been further interest in the intersections between 3D printing, robotics, the Internet of Things, and collaborative capitalism.

Liberal MP for Moore, Ian Goodenough, has also discussed 3D printing in the context of economic transitions. He commented that ‘the new economy is a result of the transition from a manufacturing based economy to a service based economy’. Goodenough stressed that the Coalition would provide ‘funding for Australia's leading scientific research organisations to

16 Ibid.
build world-class infrastructure that will create stronger connections between research and industry.' He stressed: ‘Cutting-edge technologies such as nanotechnology, telematics, 3D printing and bionics are being developed at leading research institutes across Australia.’

The Coalition Government has also energetically supported trade agreements – including bilateral agreements with China, South Korea, and Japan, and mega-regional deals, such as the Trans-Pacific Partnership.

Likewise, the Australian Labor Party’s Tim Watts and Jim Chalmers have discussed the role of 3D printing in respect of intellectual property, innovation, and trade.

In his maiden speech, Tim Watts MP expressed his concern about how intellectual property laws were becoming a handbrake on digital innovation. As ‘Maker’ communities and 3D

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19 Ibid.
20 Ibid.
printing grow in popularity, he recognised that so too will disputes over intellectual property infringement. Tim Watts MP called for a progressive Promethean politics:

In response, progressives should champion a new micro-economic reform agenda to re-evaluate intellectual property law from first principles - focusing on incentives and public benefits, not the mindless protection of statutory monopolies. This process should be led by economists and innovators, not lawyers and rent seekers. Without it, intellectual property will increasingly become an instrument of the protection of vested interests rather than the promotion of innovation. As progressives, we must stand up for the new online communities created by the digital revolution.24

Tim Watts insisted: ‘We are the Promethean party—the bearers of the fires of political change.’25 He recognised: ‘This task is a difficult one but I am confident in Labor's future knowing that I share this mission with you all’.26

For his part, Jim Chalmers MP has interested in how 3D printing will affect trade.27 He observed: ‘3D printing and similar technologies have led to a further blurring of the lines between goods and services.’28 In his view, ‘There are challenges for global trade as a result, associated with measurement, assigning property rights and responsibility for quality assurance.’29 Nonetheless, he was excited by the opportunities presented by 3D printing:

24 Ibid,
25 Ibid.
26 Ibid.
28 Ibid.
29 Ibid.
As the World Trade Organization observed in its 2013 World Trade Report, the possibility to edit and create physical objects through 3D printing will feed the burgeoning global middle class desire for variety and individuality in their goods. This is just one of many technological advances challenging us to change our way of thinking about international trade and economic growth. Advances in robotics, data sharing and medical technology are others.30

Jim Chalmers recommended: ‘Australia needs to set itself up to take advantage of the opportunities presented by these new technologies.’31 He commented: ‘By defining our role in new global value chains and mastering the technology via investment in education and broadband, we can use our greatest asset – the creativity, adaptability and innovation of our population – to create a new generation of broad-based prosperity here at home.’32

ALP politician Alannah MacTiernan has highlighted the work of CSIRO and the science institutions: ‘I would strongly encourage them to continue to have that engagement process with parliamentarians, where they come here and show us what can be done, for example, with the 3D printing of titanium and how we can produce aircraft parts in that’.33

For 3D printing, Australia has an intellectual property regime, which is eclectic and eccentric in character. Australia’s Defamation Law has been described as the ‘Galapagos Islands

30 Ibid.
31 Ibid.
32 Ibid.
Division of Tort Law’. Justice David Ipp noted that ‘the tort of defamation has evolved all on its own and has created legal forms and practices unknown anywhere else.’ Likewise, Australia’s Copyright Law is idiosyncratic. The British Empire certainly shaped Australia’s early copyright regime. Australia has repeatedly updates its copyright laws in order to address local cultural conditions and new technologies. There has also been, though, a tendency for copyright simplification projects, policy reviews and discussion papers to languish without implementation. The United States Trade Representative has transformed Australia’s copyright laws – through the introduction of the *Australia-United States Free Trade Agreement* 2004. As a result of this trade agreement, Australia has been required to adopt features of the *Sonny Bono Copyright Term Extension Act* 1998 (US) and the *Digital Millennium Copyright Act* 1998 (US). The United States Trade Representative would like Australia to go further – with its demands for the adoption of the *Anti-Counterfeiting Trade Agreement* 2011 and the *Trans-Pacific Partnership* 2015. In contrast, Australia has also been partial to European traditions in copyright law. Australia has adopted a regime of moral rights, and a resale royalty scheme for visual artists. In this context, Australian copyright law is not necessarily well-adapted to 3D printing – with its mish-mash of ad hoc parochial and cosmopolitan changes and reforms.

This Chapter considers a number of developments in respect of Australian copyright law, 3D Printing, and the Maker Movement. Part 1 focuses upon copyright subsistence about 3D printing. 3D printing raises questions about the nature and scope of the intellectual property

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commons. There have been issues associated with the protection of art, craft, and designs associated with intellectual property. Part 2 examines concerns about copyright infringement, and 3D printing. It focuses upon questions surrounding the authorisation of copyright infringement. It also looks at the regime of intermediary liability, as well as matters of technological protection measures. There is also consideration of Australia’s new copyright site-blocking laws. Part 3 focuses upon the debate over copyright exceptions in Australia, in light of the work of the Australian Law Reform Commission, and the Productivity Commission. In particular, there is a discussion of the merits of Australia adopting an open-ended, defence of fair use – like the United States. Such an exception would be particularly helpful for 3D printing, the Maker Movement, and crowdfunding.

1. Copyright Subsistence

Historically, Australian courts have taken a broad approach to copyrightable subject matter. However, 3D printing raises classical issues in respect of copyright subsistence. In particular, 3D printing raises larger issues in respect of copyright law, art, craftsmanship, and design. This issue has been complicated across a range of jurisdictions, including the United States, the United Kingdom, and Australia. In addition to doctrinal questions of copyright law, 3D printing also reveals a diversity of human creativity and ingenuity. Australian copyright law requires an intermediate level of originality – requiring independent intellectual effort.\footnote{\textit{IceTV Pty Limited v Nine Network Australia Pty Limited} [2009] HCA 14 (22 April 2009).} Australian
copyright law has a long period of copyright protection – with a standard term of life plus 70 years.\textsuperscript{37}

\textbf{A. United States}

In a White Paper, Michael Weinberg – now of Shapeways – considers 3D scanning and copyright law.\textsuperscript{38} He contends: ‘3D scanning technology is getting better, cheaper, and more ubiquitous – it is quite possible that by the time you read this your phone has a decent 3D scanner built into it.’\textsuperscript{39} Michael Weinberg observed: ‘At the same time, 3D printing, 3D graphics, and even virtual reality provide people with even more things to do with 3D scans once they make them.’\textsuperscript{40} Michael Weinberg contends that, in many cases, 3D scans will fall outside the scope of copyright protection:

So how does copyright apply to 3D scans? The short answer is that in many cases copyright does not – and should not – protect 3D scans. This is especially true for scans that are primarily designed to turn a physical object into an accurate digital representation. If the scanner is primarily motivated by “simply” making a realistic digital representation of a physical thing, it is unlikely that the scan file will be protected by its own copyright.\textsuperscript{41}


\textsuperscript{39} Ibid., 1.

\textsuperscript{40} Ibid., 1.

\textsuperscript{41} Ibid., 1.
Michael Weinberg argues that ‘Copyright will not apply as cleanly to 3D scanning as it does to seemingly analogous activities such as digital photography’.\(^{42}\) He notes: ‘Regardless, today’s utilitarian focus on turning physical things digital will often lack the creative flexibility that is required to obtain copyright protection.’\(^{43}\) However, he comments that, in the absence of copyright protection does not necessarily mean an absence of control. Michael Weinberg comments that contract law can provide robust, flexible, and enforceable protection: ‘While it may develop differently than other industries, there is no reason to assume that the lack of robust copyright protections in the world of 3D scanning means that it will be devoid of commercial enterprise.’\(^{44}\)

Thinking about application of copyright law to 3D printing of objects, Michael Weinberg notes: ‘While there are copyright implications for 3D printing, the fact that copyright has traditionally avoided attaching to functional objects – objects with purposes beyond their aesthetic value – may very well limit its importance.’\(^{45}\) He comments: ‘Copyright law has long avoided attaching to functional objects on the grounds that patent law should protect them (if they should be protected at all).’\(^{46}\) Nonetheless, Weinberg observes: ‘It is unavoidable that some functional objects also serve the types of decorative and creative purposes protected by copyright.’\(^{47}\)

\(^{42}\) Ibid., 16.

\(^{43}\) Ibid., 16.

\(^{44}\) Ibid., 15.


\(^{46}\) Ibid.

\(^{47}\) Ibid.
Dr Angela Daly has highlighted comparative differences in respect of copyright subsistence in respect of 3D printed objects.\(^{48}\)

Daly noted: ‘As for whether the 3D printed object itself will attract copyright protection, in US law a broad category of sculptural works can enjoy copyright protection, but any ‘useful article’ (‘an article having an intrinsic utilitarian function that is not merely to portray the appearance of the article or to convey information’) is excluded from this protection.’\(^{49}\)

The Supreme Court of the United States granted leave to consider the vexed question of copyright protection in respect of fashion.\(^{50}\) In the case of *Star Athletica v. Varsity Brands*, a number of 3D printing companies have filed a brief to establish a test for determining conceptual separability under copyright law.\(^{51}\) The companies involved include Formlabs Inc., Matter and Form Inc., and Shapeways Inc. In many ways, this dispute focuses upon legal issues

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\(^{49}\) Ibid, 28.


thrown up by the controversy over Left Shark. The submission noted: ‘This case presents a clear conflict among the circuits on an important substantive matter of copyright law that justifies this Court’s review’. The submission comments:

The present circuit split surrounding conceptual separability doctrine will, if left unresolved, have effects reaching far beyond the apparel industry. The already large and rapidly expanding 3D printing industry is particularly sensitive to uncertainty about the copyright protection of designs and objects. 3D printing, also known as additive manufacturing, allows users to use digital files to produce tangible objects in a manner that is often faster and more efficient than conventional fabrication techniques. In some cases, 3D printing even enables the production of shapes and forms that would be impossible to create using less revolutionary methods. The 3D printing industry has had a democratizing effect on manufacturing, allowing individuals to customize designs for their own use and greatly lowering startup costs for new entrants in markets for the design and sale of a wide variety of objects.

The submission warned: ‘These advancements are threatened by the current fractured state of copyright law on objects combining functional and artistic elements.’ The 3D companies were concerned: ‘Uncertainty over the line between copyrightable and noncopyrightable works can lead to over-claiming and over-categorization of material as copyrightable, upsetting the balance struck by Congress between the interests of rights holders and the societal benefits

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54 Ibid., 3.

55 Ibid., 3.
from a vibrant public domain.\textsuperscript{56} The industry pleaded with the Supreme Court of the United States: ‘This Court should grant certiorari to resolve the present circuit split and ensure that the development of innovative technologies and industries such as 3D printing is not hampered by the ongoing conflicts and confusion in conceptual separability doctrine’.\textsuperscript{57}

There was significant interest in how the Supreme Court of the United States decision would impact upon 3D printing.\textsuperscript{58} There was a powerful joint submission led by Public Knowledge on the topic of intellectual property and 3D printing.\textsuperscript{59} It was noted:

\begin{quote}
Consumer-driven 3D printing is creative, innovative, and greatly dependent on copying and derivation to which copyright may be the gatekeeper. Many 3D printed products, like Colin’s plastic hand, are primarily utilitarian but involve aesthetic elements. Sharing of useful 3D designs, and the productive consumer output that results from that sharing and innovation, could be thwarted by an overbroad rule of copyright.\textsuperscript{60}
\end{quote

\begin{flushleft}
\begin{footnotesize}
\textsuperscript{56} Ibid., 4.

\textsuperscript{57} Ibid., 19.


\textsuperscript{60} Ibid, 16.
\end{footnotesize}
\end{flushleft}
Charles Duan from Public Knowledge highlighted the larger ramifications of the dispute for fashion, designs, and 3D printing hobbyists.61

On the 22nd March 2017, the Supreme Court of the United States delivered a majority 6-2 opinion in favour of the respondents Varsity Brands, Inc. against Star Athletica LLC.62 Thomas J delivered the opinion of the court, in which Roberts CJ, Alito J, Sotomayor J, and Kagan J joined. Ginsburg J filed a concurrence. Breyer J filed a dissenting opinion, which Kennedy J joined.

Writing for the majority, Thomas J observed: ‘Congress has provided copyright protection for original works of art, but not for industrial designs’.63 His Honour noted: ‘The line between art and industrial design, however, is often difficult to draw. ‘We hold that an artistic feature of the design of a useful article is eligible for copyright protection if the feature (1) can be perceived as a two- or three-dimensional work of art separate from the useful article and (2) would qualify as a protectable pictorial, graphic, or sculptural work either on its own or in some other medium if imagined separately from the useful article.’64 Thomas J found that the test was satisfied in this case involving the surface of cheerleading uniforms.


In her concurrence, Ginsburg J held that ‘the designs are themselves copyrightable pictorial or graphic works reproduced on useful articles.’

In dissent, Breyer J disagreed that the designs that Varsity Brands Inc. submitted to the Copyright Office would be eligible for copyright protection. His Honour emphasized that there was a need to respect the decisions of Congress in respect of the scope of copyright protection:

The Constitution grants Congress primary responsibility for assessing comparative costs and benefits and drawing copyright’s statutory lines. Courts must respect those lines and not grant copyright protection where Congress has decided not to do so. And it is clear that Congress has not extended broad copyright protection to the fashion design industry.

The judge observed: ‘I fear that, in looking past the three-dimensional design inherent in Varsity’s claim by treating it as if it were no more than a design for a bolt of cloth, the majority has lost sight of its own important limiting principle.’


The decision attracted a wide array of public commentary.\textsuperscript{68} There has been disquiet about the impact of the Supreme Court of the United States decision on 3D printing. Michael Weinberg of Shapeways was circumspect about the impact of the decision:

The decision clarifies the test used to determine how copyright applies to many 3D printed objects. While it is too early to say for sure, it likely also greatly expands the scope of copyright protection for those objects. Why should the 3D printing community care about a case involving cheerleader uniforms again? Because the case is really about a question that comes up often in the world of 3D printed objects. Intellectual property law basically divides the world up into artistic objects that are eligible for copyright protection and functional/useful objects that are eligible for patent protection. This binary division works well when an object is clearly purely artistic (like Joaquin Baldwin’s Mobius Nautalis) or clearly purely functional (like Pinhole Printed’s film spool adapter). It does not work as well when an object combines artistic and functional elements (like — of course — Studiogijs’ Birdsnest Egg Cup).\textsuperscript{69}


\textsuperscript{69} Michael Weinberg, ‘Decision in the Cheerleader Uniform Case and a New Test for Copyright’, The Shapeways Blog: 3D Printing News and Innovation, 22 March 2017,
Likewise, Mike Masnick of TechDirt was concerned that ‘the implications for this case go way, way beyond cheerleader uniforms and could touch on any variety of products that might include some decorative elements -- especially in the 3D printed world, where so many designs are freely shared and modified.’

While Australian courts have on occasion been influenced by United States jurisprudence on matters of intellectual property, it is doubtful that this particular Supreme Court of the United States ruling will be persuasive, given existing jurisprudence in the area.

B. United Kingdom

As Cass Sunstein has noted, *Star Wars* has had a powerful influence on popular culture. Lucasfilm has been involved in significant litigation around intellectual property associated with the *Star Wars* franchise – notably in *Lucasfilm v Ainsworth* over Stormtrooper costumes.

Considering the United Kingdom, Daly commented: ‘In UK law, artistic works attracting copyright protection include ‘sculptures’ which are protected ‘irrespective of artistic quality’,

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70 Mike Masnick, ‘Supreme Court Says You Can Copyright Elements of “Useful Articles” – Which May Spell Disaster for 3D Printing and More’, *Techdirt*, 23 March 2017,


and ‘works of artistic craftsmanship’.\(^{73}\) She noted: ‘The legislation does not clearly define what both of these categories include, but subsequent case law, and its consideration in *Lucasfilm v Ainsworth*, has defined sculptures as items whose ‘intrinsic quality’ is ‘to be enjoyed as a visual thing’, even if it had other uses beyond the aesthetic—but industrial prototypes have been excluded.’\(^{74}\) Moreover, Daly also observed: ‘Yet, such 3D printed objects, even if they are obvious candidates for constituting an artistic work, may fall into the trap of being insufficiently original to attract copyright protection in their own right, if they have been constructed based on a 3D printing design file’.\(^{75}\)

Professor Dinusha Mendis and her colleagues have undertaken legal and empirical research on intellectual property and 3D printing for the United Kingdom Intellectual Property Office.\(^{76}\)


\(^{74}\) Ibid., 28.

\(^{75}\) Ibid., 28.

Such work has highlighted such complicated matters around copyright subsistence in the United Kingdom.

C. Australia

In Australia, there is a long history of debate over copyright law, artistic works, works of artistic craftsmanship, and the copyright/designs overlap.\textsuperscript{77}

The High Court of Australia has grappled with the definition of artistic works and works of artistic craftsmanship, and the overlap between copyright law and designs law. In the 2007 case of \textit{Burge v Swarbrick}, the High Court of Australia had to consider a remarkable dispute in respect of a yacht.\textsuperscript{78} Gleeson CJ, Gummow, Kirby, Heydon, and Crennan JJ noted: ‘With wallpaper, a tapestry, stained glass window, piece of jewellery or Tiffany artefact, there is considerable freedom of design choice relatively unconstrained by the function or utility of the article so produced’.\textsuperscript{79} However, the judges noted that, ‘as the evidence disclosed, that was not the case with the design constraints upon a class of yacht such as the JS 9000.’\textsuperscript{80} The High Court cited with approval the comments of Lord Simon in Hensher on artistic craftsmanship:


\textsuperscript{78} \textit{Burge v Swarbrick} [2007] HCA 17 (26 April 2007).

\textsuperscript{79} \textit{Burge v Swarbrick} [2007] HCA 17 (26 April 2007) [75].

\textsuperscript{80} \textit{Burge v Swarbrick} [2007] HCA 17 (26 April 2007) [75].
In between lie a host of crafts some of whose practitioners can claim artistic craftsmanship, some not - or whose practitioners sometimes exercise artistic craftsmanship, sometimes not. In the former class, for example, are glaziers. The ordinary glazier is a craftsman, but he could not properly claim that his craftsmanship is artistic in the common acceptation. But the maker of stained glass windows could properly make such a claim; and, indeed, the revival of stained glass work was one of the high achievements of the Arts and Crafts movement. In the latter class is the blacksmith - a craftsman in all his business, and exercising artistic craftsmanship perhaps in making wrought-iron gates, but certainly not in shoeing a horse or repairing a ploughshare. In these intermediate - or rather, straddling - classes come, too, the woodworkers, ranging from carpenters to cabinet-makers: some of their work would be generally accepted as artistic craftsmanship, most not. Similarly, printers, bookbinders, cutlers, needleworkers, weavers - and many others. In this straddling class also fall, in my judgment, the makers of furniture. Some of their products would be, I think, almost universally accepted as 'works of artistic craftsmanship'; but it would be a misuse of language to describe the bulk of their products as such.81

The High Court of Australia noted: ‘The thread running through this discussion is the significance of functional constraints, extreme for a dental mechanic, less so for a glazier or blacksmith, and depending upon the nature of the particular design brief.’82 The judges stressed: ‘A horseshoe is one task; the Tijou gates, screens and grilles wrought for St Paul's Cathedral, Hampton Court and Chatsworth by the French Huguenot ironmaster were in a very different category.’83 The High Court of Australia: ‘It may be impossible, and certainly would be unwise, to attempt any exhaustive and fully predictive identification of what can and cannot amount to "a work of artistic craftsmanship" within the meaning of the Copyright Act as it stood after the 1989 Act.’ 84

82 Burge v Swarbrick [2007] HCA 17 (26 April 2007) [82].
83 Burge v Swarbrick [2007] HCA 17 (26 April 2007) [82].
84 Burge v Swarbrick [2007] HCA 17 (26 April 2007) [82].
The judges stressed that ‘determining whether a work is "a work of artistic craftsmanship" does not turn on assessing the beauty or aesthetic appeal of work or on assessing any harmony between its visual appeal and its utility’. 85 In their view, ‘The determination turns on assessing the extent to which the particular work's artistic expression, in its form, is unconstrained by functional considerations.’ 86 The High Court of Australia noted: ‘The more substantial the requirements in a design brief to satisfy utilitarian considerations of the kind indicated with the design of the JS 9000, the less the scope for that encouragement of real or substantial artistic effort.’ 87 The judges commented: ‘It is that encouragement which underpins the favourable treatment by the 1989 Act of certain artistic works which are applied as industrial designs but without design registration.’ 88 Noting that ‘Questions of fact and degree inevitably arise,’ 89 the High Court of Australia concluded ‘that the Plug was not "a work of artistic craftsmanship" because the work of Mr Swarbrick in designing it was not that of an artist-craftsman.’ 90

The Seafolly fashion case was another instance of a conflict over copyright law, artistic craftsmanship, and designs law.91

85 Burge v Swarbrick [2007] HCA 17 (26 April 2007) [83].
86 Burge v Swarbrick [2007] HCA 17 (26 April 2007) [83].
87 Burge v Swarbrick [2007] HCA 17 (26 April 2007) [84].
88 Burge v Swarbrick [2007] HCA 17 (26 April 2007) [84].
89 Burge v Swarbrick [2007] HCA 17 (26 April 2007) [84].
90 Burge v Swarbrick [2007] HCA 17 (26 April 2007) [85]
91 Seafolly Pty Limited v Fewstone Pty Ltd [2014] FCA 321 (1 April 2014)
The Advisory Council on Intellectual Property considered the question of designs law and 3D printing in its inquiry into the state of Australian designs law. The body was of the view that it was premature to respond to the topic of 3D printing. Recommendation 21 was that ‘ACIP recommends no change to the designs system at this time to respond to 3D printing and scanning technologies.’ Subsequently, the Advisory Council on Intellectual Property was disbanded by the Abbott Conservative Government – as part of its rationalisation of expert advisory bodies. The Turnbull Government has agreed with the majority of the recommendations of the Advisory Council on Intellectual Property. The Turnbull Government accepted the recommendation on designs law and 3D printing, considering that ‘it would be premature to take legislative action when there is no evidence of any existing problem.’

2. Copyright Infringement

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93 Ibid.


95 Ibid.
3D printing has raised larger concerns about copyright infringement. The copyright maximalist Australian Copyright Council\textsuperscript{96} and the Arts Law Centre of Australia\textsuperscript{97} have sought to present 3D printing in the context of copyright law, economic rights infringement, moral rights infringement, and designs infringement. Likewise, legal practitioners highlighted the potential for 3D printing to facilitate copyright infringement. John Hornick argues: ‘As 3D printers become capable of making almost anything, copying things away from control will become as easy as downloading illegal music.’\textsuperscript{98} There has also been a moral panic about 3D printing facilitating copyright infringement – like peer to peer networks such as Napster in the past.\textsuperscript{99} Such a representation seems designed to raise fears and anxieties about mass infringement in respect of copyright works.

Much like other earlier disruptive technologies, the emergence of 3D printing has raised fears and anxieties about copyright infringement. Sarah Swanson reflected:

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Following in the footsteps of the printing press, the Xerox machine, and the DVR, the 3D printer could potentially cause more copyright complications than all the previous advances in technology combined. In an effort to maintain some stability and flexibility, manufacturers should either try to avoid possible litigation by following the rules created by the courts in similar cases or attempt to fight back and try to break the narrow barriers surrounding copyright law. It is important to remember, however, that liability preventative steps will help curtail some of the roadblocks once faced by the computer, the DVR, and online file sharing.100

She maintained that ‘the way to prevent the 3D printer from being removed from commerce or confined to the limits of current copyright law is by learning from the past and implementing proper restrictions that will also prevent costly litigation’.101 In the United States context, Swanson contends that ‘Congress and the courts will also have to work with 3D manufacturers to help create a more flexible copyright world for the 3D printer.’102

In his work on the philosophy of copyright law, William Patry notes that intellectual property owners often seek to advance economic interests under the guise of false moral imperatives: ‘ Conjuring up moral panics and folk devils occurs through metaphors casting the other side in an unfavourable light, in the case of copyright, by painting those who use works without permission as thieves, trespassers, pirates, or parasites’. 103 In the field of copyright law, there has long been a tendency to demonise new technologies, which threaten established industries, guilds, and market relationships.


101 Ibid., 514.

102 Ibid., 514.

In his classic article, ‘IP in a World without Scarcity’, Mark Lemley reflects upon the futility of copyright enforcement in an internet age.\textsuperscript{104} He observed:

Copyright owners have been unable to stop a flood of piracy even with fifty thousand lawsuits, a host of new and increasingly draconian laws, and a well-funded public education campaign that starts in elementary school. They might have more success targeting the intermediaries rather than the individuals consuming content, but because those intermediaries distribute content without regard to what it is, IP law can block piracy there only at the cost of killing off what is good about the Internet.\textsuperscript{105}

Lemley predicts that ‘Professional industrial design firms will resist having their works “Napsterized” because they fear losing control over who can use their design and not getting paid when people do.’\textsuperscript{106} He noted that that some have already called for strengthening Intellectual property laws to try to block the distribution of designs for 3D printers. In light of the past history of copyright law and new technologies, Lemley questioned whether such strategies would be appropriate, well-adapted or effective in respect of 3D printing.

Cory Doctorow has warned against moral panics being invoked in respect of 3D printing—focusing on such apocalyptic threats as piracy, organised crime, and terrorism.\textsuperscript{107}


\textsuperscript{105} Ibid., 462.

\textsuperscript{106} Ibid., 498.

\textsuperscript{107} Cory Doctorow, ‘Four Horsemen of the 3D Printing Apocalypse’, (2011) 27 Make Magazine 31 <http://m-cdn.dashdigital.com/make/vol27?pg=33#pg33>; and Cory Doctorow, ‘3D Printed Guns are Going to
A. Authorisation and Secondary Copyright Liability

There has been much discussion about copyright enforcement in respect of 3D printing.\textsuperscript{108} There could be issues with respect to direct and secondary copyright infringement.

In Australia, the developers of 3D printing will need to take care to ensure that they do not ‘authorise’ copyright infringement – to use the language of the High Court of Australia in the \textit{iiNet} case.\textsuperscript{109} Considering a dispute between copyright owners and an Internet service provider, French CJ, Crennan, and Kiefel J held that iiNet had not authorised copyright infringement:

\begin{quote}
A consideration of the factors listed in s 101(1A) does not permit a conclusion that iiNet is to be held liable as having authorised the infringements. The extent of iiNet's power was limited to an indirect power to prevent a customer's primary infringement of the appellants' films by terminating the contractual relationship between them. The information contained in the AFACT notices, as and when they were served, did not provide iiNet with a reasonable basis for sending warning notices to individual customers containing threats to suspend or terminate those customers' accounts. For these reasons, iiNet's inactivity
\end{quote}


\textsuperscript{109} \textit{Roadshow Films Pty Ltd v. iiNet Ltd} [2012] HCA 16 (20 April 2012).
after receipt of the AFACT notices did not give rise to an inference of authorisation (by "countenancing" or otherwise) of any act of primary infringement by its customers.\textsuperscript{110}

The judges noted: ‘This final conclusion shows that the concept and the principles of the statutory tort of authorisation of copyright infringement are not readily suited to enforcing the rights of copyright owners in respect of widespread infringements occasioned by peer-to-peer file sharing, as occurs with the BitTorrent system’.\textsuperscript{111} The judges commented: ‘The difficulties of enforcement which such infringements pose for copyright owners have been addressed elsewhere, in constitutional settings different from our own, by specially targeted legislative schemes, some of which incorporate co-operative industry protocols, some of which require judicial involvement in the termination of internet accounts, and some of which provide for the sharing of enforcement costs between ISPs and copyright owners.’\textsuperscript{112}

Likewise, 3D printing platforms will have to ensure that they do not ‘induce’ copyright infringement – to use the formula of the Supreme Court of the United States in the \textit{Grokster} case.\textsuperscript{113} There is a need to ensure that the net of secondary copyright liability is not cast too widely or indiscriminately. As Justice Breyer noted in the \textit{Grokster} case:

\begin{quote}
Sony's rule is strongly technology protecting. The rule deliberately makes it difficult for courts to find secondary liability where new technology is at issue. It establishes that the law will not impose copyright liability upon the distributors of dual-use technologies (who do not themselves engage in unauthorized copying) unless the product in question will be used almost exclusively to infringe copyrights (or unless
\end{quote}

\begin{footnotes}
\textsuperscript{110} \textit{Roadshow Films Pty Ltd} v. \textit{iiNet Ltd} [2012] HCA 16 (20 April 2012).
\textsuperscript{111} \textit{Roadshow Films Pty Ltd} v. \textit{iiNet Ltd} [2012] HCA 16 (20 April 2012).
\textsuperscript{112} \textit{Roadshow Films Pty Ltd} v. \textit{iiNet Ltd} [2012] HCA 16 (20 April 2012).
\textsuperscript{113} \textit{Metro-Goldwyn-Mayer Studios Inc} v \textit{Grokster Ltd} 545 US 913 (2005).
\end{footnotes}
they actively induce infringements as we today describe). Sony thereby recognizes that the copyright laws are not intended to discourage or to control the emergence of new technologies, including (perhaps especially) those that help disseminate information and ideas more broadly or more efficiently. Thus Sony’s rule shelters VCRs, typewriters, tape recorders, photocopiers, computers, cassette players, compact disc burners, digital video recorders, MP3 players, Internet search engines, and peer-to-peer software. But Sony’s rule does not shelter descramblers, even if one could theoretically use a descrambler in a noninfringing way. 114

In this context, the Sony rule does provide protection in the United States for emerging technologies, such as 3D printing, which have the capacity for substantial non-infringing uses. The problem in Australia has been that there has been a reluctance by the courts and the Australian Parliament to recognise an equivalent to the Sony rule.

James Grimmelman has commented that 3D printing poses particular enforcement problems.115 He observed:

Music and movies have had enforcement problems in spades since Napster and its nephews. Now that the world of bits is colonizing the world of atoms, the makers of things are about to learn that they are less special than they may have thought. They confront exactly the same enforcement challenges: consumerized infringement-facilitating technologies; all-but-undetectable end-user copying; and an instantaneous worldwide distribution network. The 3D printer is the new CDROM drive.116

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116 Ibid., 13-14.
In his view, ‘copyright’s overall framework of secondary liability and statutory remedies’ does not significantly change if file-sharers are swapping ‘CAD files rather than episodes of Game of Thrones.’\textsuperscript{117}

B. Safe Harbours and Site-Blocking

Under the aggressive leadership of Tony Abbott, the Federal Government took a hard line on copyright enforcement. The film studio Village Roadshow made significant political donations to both the Liberal Party of Australia and the opposition, the Australian Labor Party. The Attorney-General George Brandis pushed through the passage of the \textit{Copyright Amendment (Online Infringement) Act} 2015 (Cth), with the assistance of the Shadow Attorney-General Mark Dreyfus. The Internet site-blocking legislation was dubbed the worst piece of legislation by the Electronic Frontier Foundation in 2015. In 2015, Village Roadshow and Foxtel launched copyright actions over a number of sites in the Federal Court of Australia to test the new regime.\textsuperscript{118} In 2016, the Federal Court of Australia ordered internet service providers to block access to the Pirate Bay, Solar Movie, Torrentz, TorrentHound, and IsoHunt, finding that they were in ‘flagrant’ disregard of copyright owners’ rights.\textsuperscript{119} There has also an action by the music industry under the new site-blocking regime.\textsuperscript{120} Moreover, the Attorney-General George

\begin{itemize}
  \item \textsuperscript{117} Ibid., 14.
  \item \textsuperscript{118} Will Ockenden, ‘Village Roadshow Wants Streaming Website Solar Movie Blocked in Australia’, ABC PM, 18 February 2016, <http://www.abc.net.au/pm/content/2016/s4409334.htm>
  \item \textsuperscript{119} \textit{Roadshow Films Pty Ltd v Telstra Corporation Ltd} [2016] FCA 1503 (15 December 2016).
\end{itemize}
Brandis pushed for a copyright code, governing the relationship between copyright owners, intermediaries, and Internet users.

In contrast to Tony Abbott, who was hostile to science and technology, Australia’s New urbane Prime Minister Malcolm Turnbull has promoted an innovation agenda, and placed emphasis upon entrepreneurship, economic agility, and digital disruption. He has had significant exposure to intellectual property law and policy, as is well documented by Paddy Manning’s new biography, *Born to Rule*. Turnbull made his name in the ‘Spycatcher’ case, taking on and defeating the United Kingdom Government. As chairman of OzEmail, he was no doubt sensitized to copyright issues. The copyright collecting society APRA threatened an action for copyright infringement against the internet service provider, which was later settled. Turnbull took carriage of reforms of film copyright during the Howard Government. He seemed uncomfortable with a number of policies of the Abbott Government affecting the Internet. Peter Hartcher reported that Malcolm Turnbull battled with Tony Abbott over the proposal for copyright fines for Australian internet users. Turnbull was of the view that Abbott’s heavy-handed copyright proposals were ‘politically explosive.’

Malcolm Turnbull has shifted the responsibility for copyright law away from the Attorney-General George Brandis to the new Minister for Communications and the Arts, Senator Mitch Fifield. Just before Christmas, in December 2015, the Ministry for Communications and the Arts

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Arts released an exposure bill, the *Copyright Amendment (Disability Access and Other Measures) Bill* 2016 (Cth). The proposed legislation has several key components.

Since the passage of the *Copyright Amendment (Digital Agenda) Act* 2000 (Cth), Australia’s ‘safe harbour’ regime has been limited to traditional service providers, such as telecommunications networks and internet service providers.

For many years, Google and other information technology companies have been lobbying successive Federal Governments for a more expansive definition of service providers. Such companies have been fearful of being exposed to copyright infringement lawsuits in Australia, without the protection of a ‘safe harbour’ regime. Copyright owners, though, have fought against an expansion of the ‘safe harbour’ regime.

The *Copyright Amendment (Disability Access and Other Measures) Bill* 2016 (Cth) proposed to expand the current ‘safe harbour’ provisions in the Australian copyright legislation to include a broader range of entities. However, after opposition from copyright owners, the safe harbours reforms were excised in the final version of the bill by the Coalition Government. The *Copyright Amendment (Disability and Other Measures) Bill* 2017 (Cth) focused just on copyright law and disability rights; copyright term for unpublished works; and statutory licensing. While applauding a number of the reforms, Nicolas Suzor and Tess van Geelen lamented that the lack of action on safe harbours was a lost opportunity.123

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There are a wide range of online 3D printing platforms.\textsuperscript{124} Conceivably such platforms would benefit from the introduction of a wider safe harbour regime in Australia. Financial crowdfunding companies such as Kickstarter have also received copyright take-down notices in terms of the \textit{Digital Millennium Copyright Act} 1998 (US). The Australian regime could provide for protection to crowdfunding sites engaged in raising funds for 3D printing projects.

3D printing has also tested the limits of the safe harbours regime set up under the \textit{Digital Millennium Copyright Act} 1998 (US). This is relevant to Australia because, as a result of trade agreements, this jurisdiction has had to adopt many elements of \textit{Digital Millennium Copyright Act} 1998 (US). Moreover, many information technology companies used by Australian consumers deploy terms of service, which rely upon the \textit{Digital Millennium Copyright Act} 1998 (US).

In the United States, there has been a review process in respect of the regime of safe harbours, and take-down and notice schemes.

Major empirical research on takedown and notice system under the \textit{Digital Millennium Copyright Act} 1998 (US) by Jennifer Urban and her colleagues has highlighted the need for reform.\textsuperscript{125} Urban and her colleagues are concerned by the rise of automated, ‘bot’ based systems to address copyright infringement, which leave little room for human judgment in


respect of standards, such as fair use. The study reveals a high number of take-down requests of questionable validity. The research raised concerns about the effects of copyright takedown abuse on online freedom of speech and expression.\textsuperscript{126} The ‘Dancing Baby’ YouTube case has highlighted such problems.\textsuperscript{127} There is pressure upon the United States Congress and the Copyright Office to reform the system.\textsuperscript{128}

In April 2016, a number of 3D printing companies like Makerbot, Shapeways, and Stratasys, and crowdfunding entities like Kickstarter made a submission on the current regime.\textsuperscript{129} The submission noted that ‘[Online Service Providers] are a critical platform for free speech and economy activity that empower individuals and small businesses to easily post content and connect to a global audience.’\textsuperscript{130} The online service providers explained some common concerns:

\begin{itemize}
\item \textsuperscript{126} Cory Doctorow, ‘Landmark Study on the Effects of Copyright Takedown Abuse on Online Free Expression’, \textit{Boing Boing}, 30 March 2016, \url{http://boingboing.net/2016/03/30/landmark-study-on-the-effects.html}
\item \textsuperscript{127} \textit{Lenz v Universal Music Corporation}, 801 F 3d 1126 (9th Cir 2015). See amended decision in \textit{Lenz v. Universal Music Corporation} 2016 WL 1056082 (9th Cir 2016).
\item \textsuperscript{128} Mike Masnick, ‘DMCA’s Notice and Takedown Procedure is a Total Mess, and It’s Mainly Because of Bogus Automated Takedowns’, \textit{TechDirt}, 30 March 2016, \url{https://www.techdirt.com/articles/20160330/01583234053/dmcas-notice-takedown-procedure-is-total-mess-mainly-because-bogus-automated-takedowns.shtml}
\item \textsuperscript{130} Ibid., 1.
\end{itemize}
OSPs key role in the online ecosystem derives in part from their mass accessibility. OSPs empower millions of users to create and publish content with a low barrier to entry. Before OSPs existed, people needed considerable resources to widely disseminate their content. Today, user generated-content reaches a global audience after simply accepting an OSP’s terms of use.

However, with this mass accessibility comes a potential conflict affecting the free flow of ideas, the dissemination of innovation, and small business-fueled economic growth. When OSPs are exposed to liability for the content generated by their users, it restricts the OSPs’ ability to support the freewheeling communities that have been the basis for so much economic, cultural, and political activity.131

The companies noted that Congress had only partially addressed the concerns through passing laws such as the online safe harbours of the Digital Millennium Copyright Act 1998 (US), and Section 230 of the Communications Decency Act. The companies commented: ‘While the practical implementation and use of copyright safe harbors have raised a number of important questions, Commenters focus this comment on a specific development that is distorting the notice and takedown process designed by Congress.’132 The companies are worried by combination notices: ‘The increasingly common practice of combining allegations of trademark infringement with Section 512 copyright infringement notices effectively transforms a notice and counter notice process into a notice and stay down process.’133

The companies stressed the importance of safe harbors: ‘The Section 512 safe harbors allow Commenters to invest in improving and supporting their businesses without fear that a single

131  Ibid., 1.
132  Ibid., 1.
133  Ibid., 1.
infringing upload could result in debilitating copyright litigation."134 The companies also observed that the ‘safe harbors also give users the opportunity to dispute claims by overly aggressive rightsholders.’135

The companies observed that ‘safe harbors help protect against over-enforcement by allowing users to push back against problematic takedown requests.’136 They commented that there were different perspectives between online service providers, and individuals, in respect of the operation of the regime. The companies observed:

Key to understanding the value of safe harbors is recognizing the differing viewpoints of OSPs and their users. OSPs – Commenters included – must consider the best interests of their entire user base when evaluating a request to take down an individual item. Within that rubric, it is often rational for OSPs to comply with a marginal, but colourable, request for any individual item to be taken down in order to protect the larger viability of the user base and avoid costly litigation.137

The 3D printing companies and their associates said: ‘If OSPs had the security of safe harbor protections for non-copyright claims, OSPs could offer users the ability to push back against rightsholder claims.’138 It is striking that the players in this sector sought to address this particular issue and problem.

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134 Ibid., 2.
135 Ibid., 2.
136 Ibid., 5.
137 Ibid., 5.
138 Ibid., 5.
In 2017, Shapeways and its fellow user-content based companies made a submission on the topic of intellectual property and intermediary liability to the new Trump administration.139 Kickstarter, Makerbot, Meetup, and Shapeways expanded upon their concerns about the safe harbour regime.140 The companies noted: ‘While policy discussions are often framed in the context of the largest [Online Service Providers], framing solutions in terms of those [Online Service Providers] will inevitably harm the richly diverse online ecosystem.’141 The four companies observed: ‘The current Section 512 system is flawed, but one of its strengths is that its structure is flexible enough to be implemented by [Online Service Providers] of wildly varying sizes, sophistication, and technical ability.’142 Shapeways and its companions warned: ‘Establishing benchmarks or enshrining practices related to the largest [Online Service Providers] would undermine that key to the Section 512 system’s success.’143

141 Ibid., 2.
142 Ibid., 4.
143 Ibid., 4.
It remains to be seen how the new Trump White House deals with copyright law, 3D printing, and innovation. Initial impressions, though, would suggest that the new administration does not share the enthusiasm of the Obama White House for the field.144

More generally, there are issues in respect of the regulation of intermediary liability – both for copyright law and other disciplines.145

C. Technological Protection Measures

There has also been much policy discussion over copyright law, technological protection measures, and 3D printing.146

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Australia’s regime for technological protection measures was implemented in 2000. The High Court of Australia handed down a landmark decision on the definition of technological protection measures in *Stevens v. Sony*.147 The court stressed:

> In these circumstances, it is preferable for this Court to say with some strictness what s 10(1) of the Copyright Act means in its definition of TPM, understood according to the words enacted by the Parliament. If it should transpire that this is different from the purpose that the Parliament was seeking to attain (or if it should appear that later events now make a different balance appropriate) it will be open to the Parliament, subject to the Constitution, to enact provisions clarifying its purpose for the future.148

However, the regime was revised after the introduction of the *Australia-United States Free Trade Agreement 2004*.149 The *Trans-Pacific Partnership 2015* threatened to further prescribe standards in respect of technological protection measures and electronic rights management information.150 However, that agreement is now in doubt – with the departure of the United States. The current Coalition Government in Australia is desperately trying to revive the agreement.

Such conflicts have tested the creaky, anachronistic framework for exceptions to technological protection measures laid down under the *Digital Millennium Copyright Act 1998* (US).

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148 *Stevens v Kabushiki Kaisha Sony Computer Entertainment* [2005] HCA 58 [223]-[225].

149 *Australia-United States Free Trade Agreement 2004*.

Public Knowledge and the Electronic Frontier Foundation have petitioned the United States Copyright Office at the Library of Congress to provide an exemption to the prohibition on the circumvention of copyright protection systems for access control technologies.\textsuperscript{151} The proponents sought an exemption for the users of 3D printers to engage in the use of non-manufacturer approved feedstock. The submission argued that ‘it is improper for them to rely on Section 1201 to prohibit users of 3D printers from using alternative feedstocks’.\textsuperscript{152} Public Knowledge warned that ‘Interoperability, innovation, and consumer value are all negatively impacted by manufacturer-imposed feedstock restrictions in 3D printers.’\textsuperscript{153}

In response, Stratasys asked the United States Copyright Office to deny a proposal that would legalise jailbreaking 3D printers in order to use your own feedstock.\textsuperscript{154} The company argued that ‘the proposed exemption would undermine technological mechanisms that have supported the rapid innovation and increased adoption of 3D printing technologies among new classes of customers.’\textsuperscript{155} The Intellectual Property Owners Association also opposed the creation of an exemption in technological protection measures for 3D printing, arguing: ‘Manufacturers have

\begin{footnotesize}

\textsuperscript{152} Ibid., 3.

\textsuperscript{153} Ibid., 4.


\textsuperscript{155} Ibid.
\end{footnotesize}
invested substantial research and development funds predicated on business models that allow them to recoup and continue such investments.¹⁵⁶

In the end, the United States Copyright Office granted a very limited exception in respect of copyright law, circumvention, technological protection measures and 3D printing.¹⁵⁷

For its part, Hollywood film studio Disney has expressed the desire to develop an anti-copying device in respect of 3D printing.¹⁵⁸

Cory Doctorow has been concerned about the impact of technological protection measures and digital rights management.¹⁵⁹ As part of the Apollo 1201 initiative, he has collaborated with

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the Electronic Frontier Foundation to call for the abolition of digital rights management systems and technological protection measures.160

D. Moral Rights

In addition to such concerns about economic rights, intermediary liability, and digital locks, there could well be issues about 3D printing and moral rights in Australia.

Whereas the United States has only limited protection for moral rights,161 Australia has since 2000 recognised a comprehensive regime of moral rights.162 There is a moral right of attribution, a moral right against false attribution, and a moral right of integrity. Under the Australian legal system, moral rights cannot be waived. There can be consent granted in respect of acts which would otherwise be a moral rights infringement. The moral rights regime is subject to a test of reasonableness. There is an evolving jurisprudence in Australia on the topic of moral rights.163

162  Copyright Amendment (Moral Rights) Act 2000 (Cth).
Historically, there have been significant conflicts in respect of moral rights and remix culture. Photography has attracted moral rights litigation.\textsuperscript{164} There have been battles over appropriation art.\textsuperscript{165} There has also been significant conflict over musical sampling.\textsuperscript{166} Although architects only have a right of consultation in respect of architectural works, there has been a number of controversies over moral rights and architecture.\textsuperscript{167}

Internationally, there has been a dispute in respect of 3D printing and moral rights in respect of the 3D printing of a Marcel Duchamp chess set. There was an international fight over 3D printing Marcel Duchamp’s Chess Set, raising complex questions about United States and


\textsuperscript{166} Schott Musik International GMBH & Co & Ors v Colossal Records of Australia Pty Ltd & Ors [1997] FCA 531 (19 June 1997); Perez & Ors v Fernandez [2012] FMCA 2 (10 February 2012); Pocketful of Tunes Pty Ltd v Copyright Tribunal [2015] FCAFC 146 (20 October 2015); and Elizabeth Adeney, 'The sampling and remix dilemma: what is the role of moral rights in the encouragement and regulation of derivative creativity' (2013) 17(2) Deakin Law Review 335-348

French copyright law. There was an allegation of breach of moral rights. In response to a cease and desist order, the designers have returned with a second set of Duchamp-inspired 3D printed chess pieces. The 3D printing makers are claiming this time to be engaging in parody and satire of the original Marcel Duchamp chess pieces.

In this context, there could be future disputes over 3D printing and moral rights in Australia. Perhaps of most interest would be the moral right of integrity – which could apply to physical alterations of copyright works, and even contextual uses of copyright works.

As well documented by the film Print The Legend, there have sometimes been conflicts when 3D printing platforms have shifted from open communities to start-up companies. In 2014, there was controversy after Makerbot allegedly filed a patent on a design from the Thingiverse Community. He observed that ‘the actual patent does not overlap with these community designs.’ Doctorow suggested: ‘If Makerbot has committed a sin here in patenting an extruder, it is not the sin of which it stands accused -- taking a design from its community and

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172 Ibid.
claiming rights to it.\textsuperscript{173} More generally, sharing design files through Creative Commons licence may ensure publications become prior art in any patent process.

3. Copyright Exceptions

3D Printing platforms and the Maker Movement raise larger questions about the scope and breadth of copyright exceptions. In particular, there has been significant conflict and tension over the limitations of Australia’s defence of fair dealing. There are ongoing debates as to whether Australia should adopt a broad, flexible, and open-ended defence of fair use. In the absence of copyright law reform, there has been a need to rely upon open licensing such as that provided by the Creative Commons movement to share 3D printing works and files.

A. The Defence of Fair Dealing

3D printing poses complications for a number of jurisdictions, which only have a purpose-specific defence of fair dealing.

Australia has a purpose-specific defence of fair dealing.\textsuperscript{174} Specific purposes include criticism and review, research and study, reporting the news, and use in judicial proceedings. In 2006, a new defence of fair dealing for parody and satire was added. In Australia, the developers of 3D printing face certain risks and uncertainties in respect of litigation under Australian copyright law. Australia does not have a broad, open-ended, flexible defence of fair use - like the United States. Instead, Australia has the much more narrow defence of fair dealing. The permitted

\textsuperscript{173} Ibid.

\textsuperscript{174} SS 40, 41, 41A, 42, 43, 103A, 103AA, 103B, 103C, and 104 of the Copyright Act 1968 (Cth).
purposes for fair dealing include research and study; criticism and review; reporting the news; and parody and satire. The developers of 3D printing would struggle to obtain protection under the defence of fair dealing - outside educational applications within the ivory towers of Australian universities. As such, the developers behind 3D printing would be loath to establish their operations in Australia. They would be vulnerable to copyright law suits. Such entrepreneurs would be better off sheltering under the protection afforded by the defence of fair use in the United States. Given our comparative disadvantage in the digital economy, with our strict and draconian copyright laws, Australia would be well-advised to revise its copyright laws, and adopt a defence of fair use, which was flexible enough to accommodate new technologies, such as the emergence of 3D printing.

There are a number of other countries, with similar limitations and deficiencies in respect of copyright exceptions. In the United Kingdom, the Hargreaves Review was disinclined to adopt a fair use exception.175

In Ireland, the Copyright Review Committee released a report on copyright law reform in October 2013. In its view, ‘there is scope under EU law for member states to adopt a fair use doctrine as a matter of national law’ and recommended the enactment of a fair use exception.176

The Committee provided two justifications for a fair use exception. First, it emphasized that ‘it is simply not possible to predict the direction in which cloud computing and 3D printing are


going to go, and it is therefore impossible to craft appropriate ex ante legal responses’. \(^\text{177}\)

Secondly, ‘it will send important signals about the nature of the Irish innovation ecosystem’ and ‘it will provide the Irish economy with a competitive advantage in Europe’. \(^\text{178}\)

Much like Australia, Canada has a defence of fair dealing. However, the Supreme Court of Canada has read that defence of fair dealing broadly in a series of cases. \(^\text{179}\) The jurisprudence has been quite expansive in terms of the protection that it provides for users’ rights.

**B. The Defence of Fair Use**

In 1998, the Copyright Law Review Committee recommended the adoption of a defence of fair use in Australia. \(^\text{180}\) With the introduction of the *Australia-United States Free Trade Agreement* 2004, there were again calls for the introduction of a defence of fair use to restore balance to

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177 Ibid., 93.
178 Ibid., 93.
the copyright regime.181 In 2006, there were amendments under the Howard Government, providing a number of new specific, narrow copyright exceptions.182 In 2013, a Parliamentary Inquiry into IT Pricing recommended the introduction of a defence of fair use in Australia.183 The concern was that Australian consumers were being charged prices for IT products and services, well in excess to their counterparts. In 2013, Senator Scott Ludlam of the Australian Greens put forward a Copyright Legislation Amendment (Fair Go for Fair Use) Bill 2013 (Cth).184 The legislation included a proposal for a defence of fair use for Australia. Senator Scott Ludlam argued: ‘Australian laws cannot continue to migrate assumptions about copyright from the printed or analogue age which is rapidly passing as we enter the digital age.’185

The Australian Law Reform Commission recommended the introduction of a fair use exception into Australian copyright law.186 This Report discussed ‘the merits of permitting a range of unlicensed uses of copyright material—uses that the ALRC considers benefit the public and

182 Copyright Amendment Act 2006 (Cth).
185 Ibid.
neither harm rights holders nor reduce the incentive to create.\textsuperscript{187} The Report observed that there had been evidence presented that Australia’s current exceptions may unnecessarily prohibit and stifle a range of activities, including 3D printing.\textsuperscript{188}

New technologies, services and uses emerge over time—rapidly in the digital environment. Many submissions suggested that a broad, principles-based exception, which employs technology-neutral drafting such as fair use, would be more responsive to rapid technological change and other associated developments than the current specific, closed-list approach to exceptions.

A technology-neutral open standard such as fair use has the dynamism or agility to respond to ‘future technologies, economies and circumstances—that don’t yet exist, or haven’t yet been foreseen’. That is, fair use may go some way to futureproof the Copyright Act.\textsuperscript{189}

The Australian Law Reform Commission contended that the adoption of a defence of fair use would be flexible and technology-neutral; promote the public interest and transformative uses; assist innovation; and align with reasonable consumer expectations. Moreover, the regime would be sufficiently certain and predictable, and be compatible with international law.

There has been particular interest in amateurs and fans relying upon the defence of fair use under copyright law.\textsuperscript{190}

\textsuperscript{187} Ibid., 102.
\textsuperscript{188} Ibid., 103.
\textsuperscript{189} Ibid., 95.
The Productivity Commission has considered the question of copyright exceptions in its study of intellectual property arrangements in 2016.\textsuperscript{191} The Productivity Commission has commented that there is a need to modernise Australia’s copyright exceptions:

In the Commission’s view, legal uncertainty is not a compelling reason to eschew a fair use exception in Australia, nor is legal certainty desirable in and of itself. Courts interpret the application of legislative principles to new cases all the time, updating case law when the circumstances warrant doing so.

To reduce uncertainty, the Commission is recommending Australia’s fair use exception contain a non-exhaustive list of illustrative uses, which provides strong guidance to rights holders and users. Existing Australian and foreign case law, particularly from the United States where fair use has operated for some time, will provide further guidance on what constitutes fair use.\textsuperscript{192}

The Productivity Commission maintained: ‘In the Commission’s view, enacting a fair use provision would deliver net benefits to Australian consumers, schools, libraries, cultural institutions and the broader community.’\textsuperscript{193} The final report makes a powerful call for the introduction of a defence of fair use in Australia.\textsuperscript{194}


\textsuperscript{192} Ibid., 18.

\textsuperscript{193} Ibid., 19.


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The Abbott Government was hostile to proposals in respect of the defence of fair use. The Turnbull Government has contemplated expanding the range purpose-specific defences for fair dealing to include disability. The Copyright Amendment (Disability Access and Other Measures) Bill 2016 (Cth) does not address the larger question of whether Australia should have a defence of fair use like the United States.

The Turnbull Government should go further and adopt a defence of fair use, as recommended by the Australian Law Reform Commission and the Productivity Commission. A defence of fair use would be an agile, innovative, and disruptive policy option, which would help reinforce the Turnbull Government’s Innovation Agenda.

Professor Kathy Bowrey from the University of New South Wales noted that the policy papers of the Innovation Agenda did not address copyright law.195 She noted that ‘copyright rules and regulations sit behind all the agendas found in the innovation statement.’ Bowrey insisted: ‘If the “ideas boom” is to move from mediocre slogan to stimulate real “leaps” and progress so that the “brightest” can shine, there is a need for more than a redistribution of public funds to starving public institutions.’196 She maintained: ‘Copyright law reform needs to be taken seriously as a political concern, not left as a plaything shunted from inquiry to inquiry, while other games are carried on behind the scenes.’197


196 Ibid.

197 Ibid.
The failure to address fair use would leave Australian innovators, entrepreneurs, and digital disruptors at a significant disadvantage. Start-ups in Silicon Valley, Boston, and Brooklyn have been able to thrive, with the help of the protection afforded by the United States defence of fair use. By contrast, Australian innovators would be exposed to the threat of actions for copyright infringement, given the narrow and limited operation of the defence of fair dealing.

The problem would be further exacerbated by the possible passage of the Trans-Pacific Partnership. The Trans-Pacific Partnership would provide for stronger, longer copyright protection throughout the Pacific Rim, and empower incumbent copyright industries, rather than start-ups and digital disruptors. As Maria Sutton out, the Trans-Pacific Partnership poses certain threats and challenges to copyright defences and exceptions – like the defence of fair use. However, the fate of the mega-regional trade agreement is in doubt, with the new United States President Donald Trump withdrawing the United States from the negotiations.

C. Creative Commons

In addition to copyright exceptions, Creative Commons licensing has been used to make 3D printing designs open and accessible.

Inspired by the Free Software Foundation and Open Source Licensing, the Creative Commons Movement sought to use standardise contracts to make copyright works more widely

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Creative Commons also has played a significant role in addressing attribution and integrity in a jurisdiction such as the United States, which lacks full protection for moral rights. Creative Commons licensing has become mainstream in information technology – with Flickr and Wikipedia adopting the licensing scheme as a standard. Moreover, Creative Commons licensing has provided the infrastructure for Open Access Publishing and Open Data. Creative Commons has also been deployed for Open Hardware in institutions, such as CERN.

Furthermore, there has been experimentation with Creative Commons licensing in a variety of scientific fields – including in respect of medicine, biotechnology, and clean technology.

In this context, the use of Creative Commons licensing in the context of 3D Printing is an important extension. In his 2012 book, Makers, Chris Anderson highlights how open source licensing and Creative Commons licensing have enabled inventors to share their creations and inventions widely. He notes that the ‘creators believe they get back more in return than they give away: free help in developing their creations’. Anderson contends that there are advantages in open innovation: ‘What that means is cheaper, faster, and better research and

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200 Creative Commons, <https://creativecommons.org/>; and Matthew Rimmer, Digital Copyright and the Consumer Revolution: Hands off my iPod, Cheltenham (UK) and Northampton (Mass.): Edward Elgar, July 2007, 261-295.


204 Ibid., 108.
development, which in turn can create unbeatable economics for companies whose products are developed this way.²⁰⁵

There has been empirical Australian-based research looking at the use of Creative Commons licensing.²⁰⁶ In a case study of Thingiverse, the researchers explored the use of Creative Commons licences:

Our first finding, based on an analysis of metadata from the 68,618 Public Things hosted on Thingiverse, was that the CC licences were by far the most popular licences used. The top 4 licences were all CC, representing 89.84% of all Public Things. Interestingly, the two most popular choices - Attribution (CC BY) and the ‘sticky’ Attribution-ShareAlike (CC BY-SA) – both allow commercial usage.²⁰⁷

The researchers also noted that ‘users also keep a surprisingly large proportion of their designs private’.²⁰⁸ They observed: ‘Whether by accident or design, this adds a thick layer of ‘off-stage’ activity to what is intended, at least judging from MakerBot’s rhetoric, to be an open, transparent system dedicated to sharing.’²⁰⁹

²⁰⁵  Ibid., 109.
²⁰⁷  Ibid.
²⁰⁸  Ibid.
²⁰⁹  Ibid.
In work for the United Kingdom Intellectual Property Office, Dinusha Mendis and her colleagues provided an interesting insight of licensing scheme usage in respect of 3D printing.

Most of the uploaded files (65%) do not have any indication of a licence scheme, 16% categorise their files under the “Commons Attribution” licence and another 15% indicates “Creative Commons” as a reference. All of the other licences are around or below 1% of the total number of files.\(^{210}\)

From a European perspective, Thomas Margoni has considered how Creative Commons licensing could be applied to 3D Printed products.\(^{211}\) He is particularly concerned about the overlap between copyright law and designs law. Thomas Margoni recommends: ‘Within the framework of the CC+ protocol it has been demonstrated the possibility to add to a standard CCPL the aforementioned two extra options: either an expansion of the licence grant to include design rights or a waiver of said rights’.\(^{212}\) He comments: ‘In this way designers will finally have at their disposal an easy and practical way to share their works with the community under the conditions that so far have proven paternity’.\(^{213}\)


\(^{212}\) Ibid., 61.

\(^{213}\) Ibid., 61.
Conclusion

In 2016, Australia is at a peculiar crossroads in respect of 3D printing and additive manufacturing. The Conservative Turnbull Government has promoted innovation and science as part of its ‘Ideas Boom’. There is an enthusiasm for encouraging the 3D printing and Maker Movement in the fields of education, innovation, manufacturing, and cultural preservation. However, Australia’s copyright regime is ill-suited for such cultural creations and technological innovations. An expansive approach has traditionally taken by Australian courts in respect of copyrightable subject matter. Nonetheless, there has been great uncertainty and indeterminacy in respect of the boundaries between artistic works, works of artistic craftsmanship, and designs. In response to lobbying copyright owner industries, Australia’s has a draconian copyright regime of enforcement. There has been much litigation over intermediary liability in respect of Australian copyright law. In that context, 3D printing platforms could be exposed to copyright action. Australia’s Safe Harbours regime is rather limited and narrow. Moreover, in spite of directives by the High Court of Australia to take a cautious approach to the definition of technological protection measures, there has also been a heavy-handed approach to digital rights management. In terms of copyright exceptions, Australia has a limited defence of fair dealing. Law reform bodies such as the Australian Law Reform Commission and the Productivity Commission have recommended that Australia adopt a broad, open-ended defence of fair use, particularly for the sake of emerging technologies, such as 3D printing. There has been concerted resistance to such a proposal from the incumbent copyright industries. As a result, Australian makers are very much dependent on Creative Commons licensing and open source licensing to enable their 3D printed designs to be open and accessible. There has been great interest in Australian cultural institutions creating
makerspaces and fabspaces. However, Australia’s copyright exceptions for libraries, galleries, archives, and museums are anachronistic and ill-adapted for an age of 3D Printing. Until such time as Australia engages in genuine copyright law reform, there will only be limited interest in investing in 3D printing and additive manufacturing in Australia. 3D printing platforms would remain concerned that they would be targets for copyright litigation in the current hostile copyright environment under Australian law reform. The danger will be that Australia will once again miss out on the ‘Ideas Boom’. There remain larger international issues about intellectual property and 3D printing.

