Copyright in the Digital Domain
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Introduction

1. The early 21st Century has been described as the Information Age. It is a period in which the most valuable resources are access to and control over information. As a result copyright and other intellectual property laws are of increasing significance. The success of a commercial enterprise depends, amongst other things, upon its ability to effectively exploit its information resources. Furthermore, social and political intercourse relies heavily on the quality and volume of these intangible assets that are available.

2. Developments in broadband communications, digitalisation, convergence and globalisation raise serious implications for all regulatory regimes - especially that of the law of copyright. Following an analysis of each of the four factors, this paper examines the nature of digital material and the rights over such material conferred by the copyright regime. Particular consideration is given to the recent Copyright Amendment (Digital Agenda) Act 2000 (Digital Agenda Act) reforms, which commenced on 4 March 200[1] Finally possible technological, commercial and legislative solutions to the challenges of the digital domain are discussed.

Digitalisation

3. For the purposes of this paper, digitalisation refers to the ability of a person or system to convert a piece of information, a representation of reality or a recording of some matter into digital form. "[I]n a digital world, all creation - be it a novel, a poem, a shopping list, a painting, a photograph, a movie or a recording - are reducible to strings of noughts and ones".[2] It is possible to digitalise anything not ostensibly physical.[3]

4. All material, content and information that can be represented in some virtual manner is capable of being recorded in digital code.[4] In a discussion of virtual reality, [5] Mille noted: "[T]he digitalisation of representations of any nature [has] made all kinds of shapes, colours, lights, odours, temperatures and almost any expression of reality susceptible of being recorded, stored, processed, reproduced, and transmitted by computer means".[6] Digitalisation is the essence of the concept of dematerialisation, "a term which describes the result of the passage of goods and services from a physical medium to a logical medium (eg: paper money is the physical medium of money, the information that the PS [payment system] of a store exchanges with the computer of a bank is a logical medium)."[7]

5. The digitalisation of all tangible subject matter has produced a kind of "technological Latin".[8] This is due to common formats emerging for the
storage, manipulation and transfer of digital material. Boundaries of language, geography and proprietary technologies are being stripped away in the digital domain.

6. There are serious issues for the application of copyright in this context. Angela Bowne comments, "The digitisation of intellectual property enables it to be used in many different media, to be copied at the same quality as an original, to be manipulated and distorted, and to be distributed throughout the world cheaply, easily and speedily."[10]

**Convergence**

7. When the Copyright Act 1968 (Cth) (the Act)[11] was first drafted, there were clear distinctions between the various technologies addressed. Television, radio, cable services, published literature, artistic works, phonograms and other items were relatively autonomous.[12]

8. However, as Yastreboff explains, "Information services which were once delivered by 'distinct and separate technologies (such as paper, cassette tape, video and CD[13] may now be delivered by the same or interchangeable technology'. That is, 'digital technology provides a common universal language for all services', including text, voice, image and graphics."[14] This phenomenon is known as convergence.[15] Network convergence refers to the merging of infrastructure and communications systems.[16] As a result, previously distinct services such as radio and television broadcasting, telecommunications, publishing and cable services have begun to merge. Organisations, in adapting to these new realities, have also displayed an element of convergence in that one entity may now be involved in both content creation and distribution, or in the creation of different types of content.[17]

9. Personal computers are able to carry out tasks that were previously the domain of separate autonomous appliances and systems. Such a development was discussed in Audio-Visual Copyright Society Ltd v New South Wales Department of School Education:[18] "[W]ith the prospect of moving from analogue to digital recording, there would be a convergence of television, VCR, computer and digital recording technologies into a single living room Internet communication, information and entertainment unit. It would be connected to the web by optical fibre and/or satellite and receiving and recording information, video, film and music on-line from a provider to be accessed instantly or at some later time. . . if this level of service were achievable, the need to copy might decrease significantly."[19] This universal communication device is known as a Central Information Appliance.[20]

10. Flowing from the above, there have been calls for legal and regulatory convergence. In the light of the overlapping technological functions being provided by various digital systems, commentators argue that a common regulatory structure is necessary.[21] The Digital Agenda Act and the
Electronic Transactions Act 1999 (Cth) are two examples of this development.

11. The Digital Agenda Act received royal assent on 4 September 2000 and commenced on 4 March 2001. This followed a number of reports[22] both in Australia and overseas, that recommended legislative changes. The key changes include the provision of technology-neutral transmission and making available rights, an exemption for transient copies produced in the course of electronic communications, the limitation of liability for carriers and technological protection measures. However, there are a number of important issues that were raised in the reports but not resolved in the Digital Agenda Act and it is hoped that they will be addressed in future legislation.[23] One striking example of convergence has been the emergence of multimedia.[24] Multimedia encompasses "the convergence of video, audio and telephony technologies. It is a single work combining a rich variety of underlying works such as text, sound and visual images, both still and moving".[25]

12. The significance of convergence should not be understated. The World Intellectual Property Organisation (WIPO) Copyright Treaty of 1996 (the WCT) recognised "the profound impact of the development and convergence of information and communication technologies on the creation and use of literary and artistic works".[26]

**Broadband communications**

13. In recent years communications technologies have developed rapidly. Not long ago data transmission speeds of 2400bps[27] were common. Present compression technologies and infrastructure improvements facilitate 56Kbps transmissions over conventional telephone lines. The next generation communications technology, such as fibre-optics and satellite transmission, is known as broadband communications.[28]

14. Complementing the increased speeds of communications links have been improvements in the quality and reliability of these systems. Sophisticated software controls have enabled the creation of error correction and monitoring systems that significantly enhance the quality of the end product. Some telephone conversations are now carried using Internet protocols, due to their cost-effectiveness.[29]

15. Broadband systems allow massive amounts of data to be transmitted almost instantaneously. This facilitates usage of communications links not previously considered commercial.[30] For example, a few years ago it was not unusual for an hour to be required to download a song over the Internet. Now businesses are developing around the concept of online distribution of music.[31] Transmission of feature films, in the near future, will enable video-on-demand.[32]

16. When combined with convergence and digitalisation, the emergence of broadband communications technology poses a number of challenges for copyright management. It means that vast amounts of data, representing nearly all information, content or material, can be transmitted from one person to another quickly, easily, cheaply and reliably.[33]
Globalisation

17. Globalisation has received a pejorative connotation recently in Australia.[34] In this paper, the term simply refers to the growth in commercial interdependencies between Australia and other nations. International trade is not a new development, however it has grown in significance. At present, most markets are truly international. Commodities, manufactured goods, services and capital are being continuously exchanged between nations. Transport and communications links have developed to the extent that there are few significant barriers to a foreign firm entering domestic markets.[35]

18. The globalisation of information and entertainment markets has been profound. Inherently, they are markets in which few natural barriers exist.[36] Global telecommunications links enable information and news content to be exchanged between businesses and consumers on different continents. The same is true for educational and entertainment services. As a result we experience the globalisation of information.[37]

19. Consumers are adapting to these developments by acquiring goods and services from offshore suppliers. This is especially true with intangible, digital products.

20. For these reasons, international harmony in regulation and supervision regimes is essential. Corporations can conduct regulatory arbitrage by moving their operations into nations with lighter legal and regulatory burdens. [38] Sovereign nations have little ability to unilaterally alter their legal landscape. Global measures, such as WIPO conferences, have become a key means of conducting regulation in the global economy.

Features of digital content

21. Content, for the purposes of this paper, means text, data, sounds, images or other records of the results of a person's observation or perception.[39] Digital content is that content which can be stored in digital form.[40] Hardware and software may be required for the recording, storage, use and later perception or observation of the phenomena.

22. Due to the character and nature of digital content, copyright and other legal regimes struggle to regulate its use and exploitation. Digital material is inexpensive to work with and is easily manipulated, stored, copied and transported. Further it leaves minimal records and fundamentally challenges our economic notions of value and price.[41] Many traditional disincentives to copying do not apply to the digital medium and as a result creators fear a loss of control over their work.[42]

23. The equipment needed to use, create, transform and communicate material stored in digital form is relatively inexpensive. CD players, personal computers and scanners are present in many people's homes and most businesses. Further, it is a straightforward task to take existing digital material and create a derivative, either by combining two pre-existing items or by
adding one's own creation to existing material.

24. Any commercially available word processing program has the capacity to create digital content. Further, such programs allow a user to easily adapt or manipulate existing digital material. Combined with a scanner or manual data entry, an individual is able to convert any text-based material into digital content. Such content is then easily stored and used. The same is true for audio, audio-visual and visual material although slightly more complex equipment and software is needed.

25. Storage is much simpler in the context of digital material. Whereas a collection of books may require a room full of shelves, the same material in digital form can be stored on a CD taking a fraction of the space. Information or data can be readily retrieved. The extensive indexing and searching technologies available enhance this capability.

26. Digital material can be transported almost instantaneously, effortlessly and inexpensively. For example, international communications links allow high-speed transportation of audio-visual files with high accuracy and minimal errors. The cost of such is at least comparable to voice communications and, using the Internet, may be far cheaper.

27. Unlike physical uses of content, no records need be kept of the use of digital material. Perfect quality copies may be made that are indistinguishable from the original. There are usually no restrictions on the number of copies that can be made. These copies can be made in a very short period of time and for almost no cost. These factors pose considerable problems for civil or criminal authorities.

28. Traditional economic concepts of value are difficult to apply in the digital domain. Scarcity, in terms of physical units or copies, is not an issue. The effort involved in the production or creation of extra copies and reproductions of content may be minimal or almost non-existent. Conventional economic analysis suggests that the equilibrium price of a good or service provided within a competitive market will approach its marginal cost.[43] Marginal cost per unit of production of a copy or reproduction of digital content is negligible and from a competitive cost point of view the equilibrium price is almost nothing. Hence, the competitive market may be unable to price digital content, or may conclude that such content should be free.

29. There may be challenges in identifying which party deserves economic compensation. For example, how would the market respond to a person who uses digital recording devices to convert an analogue sound recording into a digital one? Another challenge in valuing digital content is that it may be the nonprotected elements of a work, such as the idea instead of the expression, to which consumers attribute value. Current costing and pricing methods are difficult to apply in the digital domain. As discussed later in this paper, alternate business models and paradigms are developing to suit the new era.

30. This evolutionary challenge is one familiar to copyright. For example, similar concerns to those being presently raised in respect of the digital domain were
Copyright protection of digital material

31. Protection of digital material under the Copyright Act depends upon whether the material can be included within one of the specific categories of works and nonworks. Most digital content does not fit easily into only one category. This is not a new issue for the copyright regime; however, with the impact of convergence digital material is particularly difficult to characterise. More significantly, some material may not fit into any of them. Instead of strictly following the discrete categories provided for in the Act, the following discussion groups together the main kinds of digital content according to the stimuli observed. Following that, the copyright protection afforded to the various kinds of content is considered. Finally, some issues common to the different types of content are discussed.

Written materials

Traditional literature

32. A literary work is not exhaustively defined in the Act. In University of London Press Ltd v University Tutorial Press Ltd, Peterson J held "the words 'literary work' cover work which is expressed in writing, irrespective of whether the quality or style is high". Essentially a traditional literary work includes any written material resulting from at least minimal creative effort.

33. Early in the development of digital material, there was debate as to whether written material stored in digital form constituted a literary work. Although different in their means of representation, digital text and paper-based text are functionally very similar. Both are basically a method of recording and communicating written information.

Software

34. Generally computer software has been protected as a literary work under Part III of the Act. However, some jurisdictions have protected software under other categories as well, such as a broadcast. Prior to 1984, the Act did not specifically refer to software. In Apple Computer Inc v Computer Edge Pty Ltd, Apple argued that both a written computer program and binary code were literary works. In both appeals the courts held that the written computer program was a literary work and capable of protection. However, in the High Court, the binary code was not considered a literary work as it was not an adaptation or reproduction of the source code (nor was it considered a literary work in its own right). Following the National Symposium on Legal Protection of Computer Software the Act was amended to provide that a literary work includes "a computer program or compilation of computer programs". At the same time a definition of "computer program" was inserted, being:

'a set of statements or instructions to be used directly or indirectly in a
computer in order to bring about a certain result."[58] Autodesk Inc v Dyason[59] was one of the first[60] cases where the High Court considered the application of the amended Copyright Act to computer software. Each user of Autodesk's Computer Assisted Drafting (CAD) software (known as AutoCAD) needed an anti-counterfeiting device (known as a dongle) to operate the program. The dongle emitted an electronic signal that the main program tested for before it would operate.[61] Dyason used an oscilloscope to record the signal and produced a device that would mimic the dongle and "trick" the AutoCAD software into thinking the holder was a legitimate user. The signal being emitted from the dongle was a sequence of digital computer code, equivalent in size to a sixteen-letter word.[62] Autodesk brought an action against Dyason claiming that Dyason had infringed Autodesk's exclusive rights in their creation, that is, the code in the dongle and AutoCAD software.

Dawson J, with whom Mason CJ, Brennan, Deane & Gaudron JJ agreed, stated that the device produced by Dyason infringed Autodesk's copyright.[63] They held that the binary code sequence, whilst not a computer program capable of protection in itself, was a substantial part of the program created by Autodesk to protect its software (that is, the relevant component of the AutoCAD software). The "the 127-bit series . . . in the Auto Key lock [the Dyason device] constituted a reproduction in material form of a substantial part of any actual or theoretical 'expression' in binary 'notation' of the 'set of instructions' constituting" the anti-counterfeiting component of the AutoCAD software.[64] It appears from this case that a small piece of digital code, without any semblance of instruction or procedure, would not constitute a computer program. Dawson J explained that: "It may be possible at a certain level of discourse to speak, for example, of the operation of an electric light switch as the giving of an instruction to the mechanism to turn on the light, but it is an unusual use of language. The steps taken in the operation of the AutoCAD lock [the dongle] involve no more than the steps taken in the operation of an ordinary household electric light switch and so may be thought not to amount to the embodiment of any logical process requiring the use of a language, code or notation such as is required for the expression of a computer program in a more conventional sense. Moreover, so far as the AutoCAD lock is concerned, it is not possible to identify any instructions beyond the inherent characteristics of its component parts . . . "[65]

However, a small piece of digital code may otherwise be protected by copyright. In Autodesk, Dawson J stated that the binary code sequence could be characterised as a table and could have been protected, in itself, as such.[66] In Powerflex Services Pty Ltd v Data Access Corporation[67] the court examined the breadth of copyright protection for software. One party had designed a program to carry out similar functions to the software produced by the other and had even described the functions in the same manner. Hence they shared a large number of common "commands" that produced similar results. However, this similarity did not exist in the actual software code. This highlights the difficult distinction that exists in copyright law between the protection of expressions and ideas.[68] The Court had to consider whether the
tasks being carried out by the two computer programs were expressions of the author's ideas, or the ideas themselves.

37. At first instance, the court decided that the tasks were expressions themselves and capable of protection.[69] It was held that copyright existed in the labels given to the actual tasks. The Full Federal Court, who found that the tasks and their labels were merely ideas, overturned these findings.[70] The expression of these ideas, the computer code, was not substantially similar and had not been copied. This case provides a limit to the scope of copyright protection of software, in that the actual computer code, although not perceived by the user, must be substantially similar to warrant a finding that a reproduction has occurred.

38. In Admar Computer Pty Ltd v Ezy Systems Pty Ltd the Federal Court examined the copyright status of pseudocode.[71] In this case, the court "ruled that a breach of copyright claim in a computer program cannot be proved by reliance on pseudocode, being a method of describing in English the task being performed by source code".[72] That is not to say that evidence of reproduced pseudocode is not a relevant matter. However, the pseudocode is analogous to the idea being expressed in the underlying source code and therefore does not receive copyright protection.[73]

39. In respect of both Powerflex and Admar it must be noted that, had the defendant copied a document setting out the commands to be used (the pseudocode to be followed) in a piece of software, a breach of copyright would have occurred.[74] This is because the written account of the pseudocode would probably be a protected literary work in itself.[75]

**Other digital material**

40. Convergence, as discussed earlier, poses some challenges in the sphere of software copyright. Later this paper discusses the protection of digital films and audio-visual material. However, a digital creation may have elements of both a film and piece of software. This situation arose in Galaxy Electronics Pty Ltd v Sega Enterprises Ltd.[76] In this dispute about a computer game, there was no doubt that software was involved. However, there was some debate about the most appropriate protection for the images displayed. The images were generated from a combination of data stored in the computer and the interaction of the user.[77] Two issues arose as a result. First, there was a distinction made between the computer code that represents the rules and routines being followed by the computer[78] and the adjectival information used by the computer as audio-visual content.[79] The second issue relates to interactivity[80] and is considered later in the paper as it applies to all digital content.

41. In relation to the first issue one commentator concluded: "The visual images comprising the cinematographic film were distinct from the set of instructions contained in the computer programs. The visual images were not part of the program, but were its effect, produced by the interaction of the computer program with the integrated circuit."[81] However, such sentiments are by no means universal, as the following statement shows:
"There has been considerable debate and speculation as to whether a multimedia product is eligible for protection as a computer program. It seems clear from the High Court decision in Autodesk that the definition of computer program and protection for computer programs can include not only the set of instructions but also data associated with the set of instructions". The second statement conforms more closely to the definition of software in the Act. That is, the data is part of the literary work that is capable of protection. This was not resolved in Sega as the data in question, the visual images, was protected under another head.

42. The copyright protection of computer software has broad implications. It can be argued that any digital content may be protected as a literary work. Almost all digital content, being data stored in a digital file of some sort, could conceivably constitute a computer program. This protection would be in addition to any available under the other heads of the Act. A picture or text file may be considered a computer program to the extent that it is a set of instructions as to the image or words to be displayed by a computer or other device.[84] In the light of Roland Co v Lorenzo and Sons,[85] it is not certain that the courts would adopt this reasoning. The same analysis applies to audio-visual and audio material.

43. A number of cases, in the digital realm and in other contexts, have examined whether small or seemingly mundane items can receive copyright protection. As discussed earlier,[86] in Autodesk v Dyason[87] the High Court held that a relatively small piece of digital code could receive protection as part of a literary work. The work in question was a 16 digit alphanumeric code used as an anti-copying measure by the Autodesk publisher.[88] Although relatively small and of little "literary" or "creative" value, the Court held that such a piece of code would receive protection as a computer program. Hence, it may be possible to say that a rather more complicated and lengthy graphic file, also a sequence of digital code,[89] would receive protection.[90]

44. The courts may adopt a technology-neutral approach in relation to digital content. In Roland Co v Lorenzo and Sons, Pincus J held that a document created using a word processing package received copyright protection as a literary work upon its entry into the computer system. Pincus J commented that: "the view I have arrived at amounts to treating the content of the word processor disk as a 'literary work', although it does not fall within the statutory definition of 'computer program'. I would not, for this purpose, distinguish that content from any other coded information, able to be transformed into ordinary language and other symbols."[91] The digital material received the same protection that a work created using a pen and paper would have been afforded.

45. The minimum content needed to attract copyright protection appears to be particularly small, as cases such as Autodesk highlight. However, singular words are not generally substantial enough to merit copyright protection: Exxon Corp v Exxon Insurance (Consultants).[92] The rationale for that case seemed to be that a single word couldn't be characterised as a work. Although this appears to display common sense and follow a colloquial understanding of
the concept of a "work", it does not provide guidance to one wondering whether a small item will receive protection. In the context of computer software, reference to literary enjoyment and the layperson's understanding of what constitutes a "work" is not of assistance.

46. A number of cases in the Internet context have questioned, inter alia, the size of a work capable of protection. In the Shetland Times case one news provider accused the other of infringing the copyright in its news stories. The defendant did not actually copy, at least in a traditional sense, the plaintiff's publication. Instead the defendant, using a technique known as framing, displayed the content made available at the plaintiff's website within a border created by the defendant. Unbeknown to the viewer, two different sites were being viewed simultaneously but packaged in a way that made viewers think they were only viewing content provided by the defendant. The plaintiff complained that the defendant had breached the copyright in the plaintiff's headlines. The defendant had used the headlines of the plaintiff as the links on the defendant's website. In an interim award, the court suggested that headlines themselves might be protected by copyright.

47. Another issue relates to the protection afforded to scanned or digitalised content. This is considered in more detail below.

48. The protection of a piece of content as computer software has some limitations. Whereas an artistic work is protected according to the visual impression observed by a viewer, the protection of computer software requires an analysis of the means used by the author. Where two computer programmers produce the same observable phenomena using completely different code, there may be no copyright breach involved. Hence, the protection afforded to software is in a sense more technical and narrow. The phenomena produced by a computer program and observed by the user is characterised as the idea of the author, not its expression.

Audio-visual material

49. A cinematograph film is defined in Act as: "the aggregate of the visual images embodied in an article or thing so as to be capable by the use of that article or thing:
   (a) of being shown as a moving picture
   (b) of being embodied in another article or thing by the use of which it can be so shown;
and includes the aggregate of the sounds embodied in a sound-track associated with such visual images."

50. A number of cases have examined the scope of the film category, especially in relation to digital content. As noted earlier, Galaxy Electronics Pty Ltd v Sega Enterprises Ltd discussed whether a computer game could be categorised as a film. The court approached the issue from a "technology-neutral" perspective and held that the effect observed by the viewer was the important issue, not the means utilised. Therefore, the fact that the images and sounds were stored in digital files on a computer instead of conventional
magnetic film was not material.[108]

51. Computer games challenge the traditional concept of a motion picture film. Each time the game is played, the sequence of sounds and images presented to the user varies, depending upon the user's interaction with the computer program. The court held that this "non-linear" content could still be categorised as a film.[109] That no "two sequences of images will be identical, since the actual images seen in any particular game reflect player input, did not mean that the sequence was incapable of coming within the definition of 'cinematographic film'."[110] The South African Supreme Court came to a similar conclusion in Golden China Game Centre v Nintendo.[111] Many examples of multimedia[112] are likely to be protected under the cinematograph film category. It is uncertain, however, how broadly courts will interpret the concept of a film. Although a number of courts have protected relatively non-linear computer games as films, the games in question have had a limited number of possible scenarios. In each the game's authors created all the scenarios, at least to an extent.[113]

52. Whether a reference work such as an online encyclopedia would be similarly protected is uncertain. It would be harder to characterise as a cinematograph film. However, a court may be willing to characterise this as a collection of numerous literary works, sound recordings and cinematograph films. For example, in Ahn v Midway Manufacturing Company a court had to consider the protection afforded to the components of another computer game.[114] In the production of the game, actors had been choreographed and filmed in various scenes to be used in the program. The court was willing to protect the choreography itself as a separate item of content, regardless of the fact that it was commissioned for and used in a larger work.[115]

Artistic and visual matters

53. Artistic works are protected by the Act where they fall within the following categories:
   "(a) a painting, sculpture, drawing, engraving or photograph, whether the work is of artistic quality or not; or
   (b) a building or model of a building whether the building or model is of artistic quality or not; or
   (c) a work of artistic craftsmanship to which neither of the last two . . . applies."[116]
   The courts have examined the concept of an artistic work in a few unconventional cases. Drawings have been held to include engineering sketch outlines of a pattern and the shape of a toy.[117]

54. A photograph is defined in section 10(1) of the Act to be the "product of photography or of a process similar to photography". This would at least encompass the product of a digital camera and probably includes the result of the scanning of a physical image.[118] The fact that the Act specifically states that "a product of xerography"[119] is included in the definition of a photograph strengthens this conclusion. The residual category of artistic craftsmanship[120] requires a court to consider the esoteric question whether a
particular item displays artistic qualities. In *Merlet v Mothercare Plc*[^121] the court held that a relatively conventional raincoat design did not constitute a work of art because it was inherently functional and was a domestic commodity.[^122] Pape J stated that if the creator's "intention was to create a work of art and he has manifestly failed in that intent, that is all that is required".[^123] A number of other cases have also examined what constitutes art but it is not possible to provide a general rule.[^124] As the focus is on the artistic qualities perceived by the viewer, it appears that a digital work would be on an equal footing with a physical one.[^125] As long as the material form issues are satisfied[^126] a court would probably conclude that a drawing presented by an item of digital equipment would receive the same protection as its physical equivalent. The same should be true of paintings and photographs. Engravings and sculptures will probably be limited by their physical natures.[^127]

**Auditory and musical content**

55. Auditory material may receive copyright protection under two main headings. First, a musical item may be characterised as a musical work. Musical is not defined in the Act but McKeough and Stewart suggest that it involves a "combination of melody and harmony".[^128] This may be broader than music's general meaning, which is the "art of combining sounds of voice(s) or instrument(s) to achieve beauty of form and expression of emotion".[^129]

56. Second, a sound recording, being "the aggregate of the sounds embodied in a record"[^130] is an item capable of protection. A "'record' means a disk, tape, paper or other device in which sounds are embodied."[^131] There appears to be little doubt that a selection of sounds[^132] embodied in digital form will receive copyright protection as a sound recording.[^133]

**Material communicated to the public**

57. Separate from the underlying materials involved, copyright exists in the manner that content is communicated to the public. For example, copyright exists in the sounds and or images transmitted to the public in a broadcast.[^134] The published edition of a literary, dramatic, musical or artistic work receives copyright protection, albeit a different collection of rights to the original work itself.[^135]

**Copyright owner's rights**

58. The Copyright Act provides a bundle of rights to owners.[^136] These vary according to the categorisation of the content in question. Creators may exercise these rights and restrict or authorise their exercise by other people.[^137] The distinctions between the various rights become blurred in the digital domain. There is some debate, in this context, about the application of such rights. Each of these issues will be considered in turn.

**Commercial rentals and adaptations**

59. Commercial rental and adaptation rights do not pose substantial interpretation
difficulties in the digital domain. However, there are serious commercial issues involved. This is due to the nature of digital content. The natural disincentives to copy or reproduce content, such as economies of scale and the lower quality of copies have largely disappeared. As digital content is easily copied, transmitted and manipulated, the potential for abuse of the commercial rental rights is extraordinary.

60. Difficulties arise when identifying adaptations and derivative works as a result of the ease with which digital material may be manipulated. Further, certain processes inherent in the use of digital technology may involve adaptations and derivations - such as the translation of instructions between different levels of software code or from one operating system to another. Although this is not new it is a more severe manifestation of the issue that exists in the physical realm.

61. Reproduction and coping (the duplication rights) are not generally defined. Duplication "under the copyright law occurs simply by transferring copyrightable content from one digital storage device to another." To reproduce is generally to "produce a copy or representation of" an item, to "cause [it] to be seen, heard etc again" or to cause a second object to be "made in imitation of" the first.

62. Duplication may involve more than one medium, form of storage or presentation. For example, in Roland Co v Lorenzo and Sons a reproduction was held to have occurred where text stored in a digital file was printed out onto paper. Where the material in question is a musical, literary, dramatic or artistic work, the reproduction must be in material form to infringe the copyright owner's rights.

Publication

63. Publication is deemed to have occurred where reproductions or copies have been "supplied (whether by sale or otherwise) to" or "sold, let on hire or offered or exposed for sale or hire" to the public. In the digital domain, a number of sub-issues arise.

64. First, one must consider whether copies or reproductions have been made available. In respect of physical distribution of digital content, such as CDs, it is evident that a copy has been made available. However, in regard to online distribution this is less certain. Transmissions to people using the Internet may involve a supply of multiple reproductions or copies.

65. Second, one must analyse whether the material has been communicated "to the public". Mere transmissions to a single individual, such as an email message, would not constitute making the material available "to the public". The phrase "to the public" is not defined in the Act. However, it has been considered in a number of cases, most recently by the High Court in Australasian Performing Right Association Limited v Telstra Corporation Limited (APRA v Telstra). Dawson & Gaudron JJ (with whom Toohey and McHugh JJ agreed) held that a communication to persons in their homes and other domestic setting could be a communication "to the public" where
numerous individuals receive the same content at their separate locations.[152]
In the context of a commercial operation, communications are more likely to be considered "to the public".[153]

66. A number of cases have referred to the concept of the copyright owner's public, being a more limited cross section of the community who would be willing to pay for the right to hear or see material. In APRA v Telstra the High Court held that the persons hearing the music on hold in their homes and other places constituted the copyright owner's public. Although they themselves would not have been willing to pay for the right to hear the music, there were others[154] that were willing to bear the cost of that service.[155] It was the kind of performance for which a copyright owner could reasonably expect payment.[156]

67. By way of comparison, a performance or communication in a domestic or private situation is not considered to be "to the public". The threshold, however, is not high. In APRA v Tolbush the defendant was held to have performed music "to the public" where they played tapes in audio systems exhibited for sale.[157] Every performance to members of the public is capable of being characterised as a public performance, unless it is domestic. This conclusion, from APRA v Canterbury-Bankstown Leagues Club Ltd, was based on the character of the audience.[158] Both the Canterbury-Bankstown case and Rank Film Production v Colin S Dodds[159] show that use of a publicly accessible venue is not needed for a performance or communication to be "to the public". In Dodds the transmission was from a hotel operator to a single room and a public performance was still considered to have occurred.

**Performance**

68. It is an exclusive right of the owner of material to perform it, or authorise another to perform it, in public. Performance is not exclusively defined, but includes "any mode of visual or aural presentation".[160] In relation to a film or record, a performance occurs where the material is perceived[161] in public.[162] This does not include material communicated to the public.[163] However, the operation of "reception equipment" capable of receiving a "communication" in public may constitute a public performance.[164] Reception equipment is defined as "equipment whose operation, either alone or together with other equipment, enables people to hear or see a work or other subject-matter that is communicated".[165] In the context of digital material, any act other than a "communication" that causes content to be heard or seen by the public may be a performance. Further, the public use of reception equipment that receives digital content can also be a performance.

69. This may be more easily understood by way of an example. Let us say that a website operator in Sydney places a copyright-protected sound recording by an unrelated party on their server. This is capable of being heard by members of the public. It may constitute a publication of the underlying musical work, depending on the analysis above. Playing the recording may be a relevant performance if the action can be said to have been in public. As individual users would generally listen to the item by themselves in a domestic capacity,
a court may find that the material has not been performed in public.[166] Should the computer be in a public place, such as a library, the issue would be different. In such a case the material may have been presented in public. In Telstra v APRA Gummow J stated that,

"where a work is transmitted along a wire or through the air and is played by the person receiving it to a public gathering, the person receiving the transmission, not the person transmitting it, is deemed to be the person performing the work in public".[167]

Here the liability lies on the operator of the device.[168]

**Communication**

70. The broadcast right is prima facie limited to television and sound broadcasts.[169] This right, together with the diffusion right,[170] was first given to creators in 1974, before digital communications such as those over the Internet had become common.[171] Following the Digital Agenda Act, no separate right of broadcast is given to copyright owners. Instead, the right to broadcast is included within the more general right to communicate to the public. However, the concept of a broadcast remains in the Act as copyright continues to exist in a sound or television broadcast itself (in addition to any copyright in the content the subject of the broadcast).[172]

71. A number of cases have arisen in the digital domain regarding the exercise of the broadcast and diffusion rights. The leading case in Australia is APRA v Telstra.[173] Music had been played through Telstra owned systems to members of the public. In some situations this was with Telstra's knowledge and consent.[174] However, in most situations Telstra merely acted as a telecommunications provider. As music had been communicated over both wire and wireless systems, both the broadcast and diffusion rights were raised.[175] The High Court held that Telstra had infringed both the broadcast and diffusion rights.[176] This was so even in the situations where Telstra had a passive role and no knowledge of the infringing use of their systems.

72. This case has significant consequences for all owners and users of digital content. In the words of some Australian lawyers: "The significance of this decision is that even as a passive carrier of copyright material, without control over what material was transmitted and to whom, Telstra was found liable for transmission by third parties of copyright works via Telstra's telecommunications network to customers of third parties"[177] "It would appear from the case that an ISP [Internet Service Provider] that unwittingly transmits unauthorised copyright material from the Internet to a customer's computer will be directly liable for the infringement of copyright caused by that transmission."[178]

APRA has taken action against at least one Australian ISP over this issue. It is understood that the case has been settled.[179] APRA alleged that the conduct of Ozemail's operations included the transmission of copyright-protected material to the subscribers of a diffusion service.[180]

73. As a result of technological developments and the complexity of the existing
broadcast and diffusion rights, as highlighted in cases such as APRA v Telstra,[181] broadly based rights to transmit material and make material available to the public were proposed. In the Copyright Convergence Group report Highways to Change - Copyright in the new communications environment, it was recommended that "a technology neutral, broad based right to authorise transmissions to the public should be introduced".[182]

74. A new exclusive copyright owner's right, "to communicate the work to the public" was inserted by the Digital Agenda Act. As noted above, this includes actions previously caught by the broadcast and diffusion rights. That is, it is the exclusive right of the holder of copyright in a work to "communicate" the work "to the public". This replaces and extends the diffusion right. According to section 10:

"communicate means make available online or electronically transmit (whether over a path, or a combination of paths, provided by a material substance or otherwise) a work or other subject-matter."

75. The language used is intended to equally apply to wire and wireless methods of communication.[183] This was echoed in the WCT[184] and the Copyright Reform and the Digital Agenda report released in March 1998, which stated that the: "proposed transmission right would apply to transmissions to the public in the traditional non-interactive sense of 'broadcasting', that is, the emitting of signals from a transmitter to a receiving device at a time chosen by the person making the transmission. The person receiving a broadcast can only receive it at the time when the person making the broadcast chooses to make the transmission."

Use of "online" or "electronic" processes has been made a prerequisite of the operation of this right, to distinguish it from the physical distribution of materials.[186] Neither "online" nor "electronic" are defined in the Act. There is a risk that these concepts will themselves be seen as technologically specific in the future. For example, there is an argument that a communication using optical technologies is not technically "electronic".[187] The communication right is limited to communications made "to the public".[188] This is important as it seeks to ensure that the private and domestic use of content is not caught. For example, it is not a breach of copyright to listen to a friend's CD. It is important, issues of reproduction aside, that similar kinds of conduct are exempt under the new provisions. The communication right covers both the acts of transmission (an active notion) and "making available" (a more passive concept). The reports referred to above and the WCT supported the concept of a right to make material available "to the public". Copyright Reform and the Digital Agenda noted: "the right of making available to the public would be exercised when copyright material was made available to the public in such a way that it could be accessed at a time and a place chosen by members of the public. This right is designed to cover interactive on-demand services."[189]

76. This differs from the transmission right in at least two respects. First, it gives a party the right to control whether their material is made available regardless of whether or to what extent it is accessed. This enables a party to take action without having to prove access and transmission, which as noted before, is a difficult task in the digital domain. Second, the right extends to situations in
which a person is able to access or use content without the reproduction or transmission rights being exercised.[190]

77. An example of an ambiguous situation in which the making available right may be beneficial is that of audio streaming. Audio streaming is a technique by which a sound recording is sent to a user in small portions where each is to be immediately played and discarded by the user's system. The net affect of sequential playing of small portions of the recording is the impression of continuous sound, like a radio program. It also means that a user does not have to wait for a large audio file to be downloaded before hearing the recording.[191] It is uncertain whether the user ever makes a copy or reproduction of the sound recording[192] for the purposes of the Act. However, it may constitute a performance.[193] Here a transmission has occurred, but it would be arguable that only minute portions of the recording are transmitted at any one time.

78. The issue arises whether linking involves the making available of material. Linking occurs where a website contains an icon or text that can, if commanded by the user.[194] connect them to another website. The first site does not hold any of the content of the second site, apart from the Internet address and a visual[195] or text description. Pendleton considers: "In the Internet context an alternative route would inevitably be in existence as this would be direct access to the site from which the copyright material was linked from. . . . The material has already been made available by the act of first placing the material on the [primary] site."[196] Following this analysis, which appears to be the correct one, the act of making available only relates to the first action that places an item of digital content on a server connected to the Internet or that connects to the Internet a server already containing such content.

Common issues

Transient copies

79. A few cases have examined the status of temporary copies such as those created in a computer's Random Access Memory (RAM) during its use. In MAI Systems Corporation v Peak Computer Inc[197] the plaintiff claimed that Peak had infringed MAI's copyright by copying software owned by MAI into the RAM of a third party's computer. The ninth circuit appeals court held that MAI had "adequately shown that the representation created in the RAM is 'sufficiently permanent or stable to permit it to be perceived, reproduced or otherwise communicated' for a period of more than transitory duration".[198] A statement was issued by the 1996 WIPO conference that,[199] "The reproduction right, as set out in Article 9 of the Berne Convention, and the exceptions permitted thereunder, fully apply in the digital environment, in particular to the use of works in digital form. It is understood that the storage of a protected work in digital form in an electronic medium constitutes a reproduction within the meaning of Article 9 of the Berne Convention."[200]

80. In Copyright Reform and the Digital Agenda exclusion for transient copies
made in the course of communications was proposed. The Report justifies this in terms of achieving a balance between the rights of the copyright owner and the public:

"The extension of the copyright owner's reproduction right to cover certain temporary and incidental reproductions made in the course of transmissions would tilt the copyright protection too far in favour of copyright owners. The proposed exclusion from their reproduction right of temporary copies made in the course of transmissions is an important part of the proposed scheme's balancing of the interests of owners of copyright and reasonable needs of users for access in the new communications environment."[201] The Digital Agenda Act inserted a new section 43A. This provides that the copyright in a work is not infringed by the "temporary reproduction of the work or adaptation as part of the technical process of making or receiving a communication".

81. At present certain copies are made in the carrying out of tasks other than communications. For example, most computer applications copy software from permanent storage[202] to temporary storage[203] during normal use. Such copying is exempted under section 43A. It may be that an implied licence exists according to the analysis below.[204] The Copyright Reform and the Digital Agenda report observes that copies made to RAM or for the purpose of making material available to the public are not exempt.[205]

82. The author's view is that a broader exemption than the new section 43A would have been appropriate. An exemption that covers duplications made in the course of all uses of material that have been authorised by the owner and require the creation of temporary duplications is preferable.[206] This would promote the aims of technological neutrality and simplicity.

Licences

83. A copyright owner may permit another person to do an act within the scope of the owner's exclusive rights by granting them a licence[207] Such a licence may be express or implied. The licence may be contractual but this is not always so.[208] Trumpet Software Pty Ltd v Ozemail Pty Ltd[209] examined the position of noncontractual licences.[210] Trumpet produced software and distributed it as shareware.[211] This arrangement constituted a licence binding the recipients of the software. The Court used the contractual principle of implied terms,[212] combined with the written instructions bundled with the software, to ascertain the nature of the licence:

"The Court considered that the rights granted to shareware distributors or users fell between a bare licence and a contractual licence. In effect, it was found that distributing software as shareware gave rise to certain quasi contractual rights to the world at large. In determining what these quasi contractual rights actually are, the Court adopted a contractual analysis by relying on the doctrine of implied contractual terms."[213] By acting in breach of these terms, Ozemail was outside the scope of the licence and hence breached Trumpet's exclusive rights.

84. Some have argued that an implied licence to make, at the least, transient copies would accompany the distribution of materials using a number of
digital technologies.[214] This is largely academic in relation to electronic communications of works following the insertion of section 43A. However, it is still important in other contexts such as temporary copies made in a computer's RAM (as discussed above).

85. To access or use digital content by the only methods available, one often needs to make temporary copies. An example of this is use of word processing software. For a user to utilise the software, elements of the software are retrieved from permanent memory (such a hard disk or CD-Rom and temporarily stored in the computer's RAM.

A license may be implied in this situation, although, "Traditionally, Courts have been slow to imply licences or permission to reproduce copyright works in the absence of clear expression to do so by the copyright owner. It remains to be seen how the Courts will deal [with] the question of implied licence[s] where material is placed on the Internet in circumstances where there is often full knowledge that the material could be copied"[215]
Pendleton notes that although in the physical realm a person may read a document or listen to a song[216] without the need for a licence from the copyright owner, with digital content some form of licence may be needed.[217] It is likely that courts will imply a licence from the act of voluntarily making their material available in a form that requires temporary copies to be made so that the material can be used

The implication rules such as "commercial necessity" and that the term "goes without saying" support this argument.[218]

Authorisation

86. The right to authorise a person to do an act encompassed within a copyright owner's exclusive rights is also an exclusive right of the copyright owner.[219] In Australia, the leading case on the meaning of authorise is UNSW v Moorhouse.[220] In that case the High Court held that to authorise meant to "sanction, approve and countenance".[221]

87. In respect of digital content, a number of cases have discussed whether a party, usually a service provider or carrier of some sort, had authorised a breach of copyright. Due to the logistical difficulties involved in monitoring breaches of copyright by individual users in a dynamic environment such as digital communications, copyright owners have tended to pursue service providers and carriers. In Religious Technology Centre v Netcom Online Communications Services the court held that the operator of a bulletin board service was not liable, as they were simply conduits for communications between unrelated third parties.[222] However in Playboy v Frena[223] and Sega Enterprises v MAPHIA[224] the bulletin board operators were held to be liable, as they had been more than just passive carriers.

88. A number of lawyers and commentators have called for reform in the copyright liability of service providers and carriers.[225] The decision in Telstra v APRA implies that many such entities could potentially be liable for the conduct of the users of their systems.[226] The Australian reports recommended that the concept of authorisation be used to regulate the liability
of users and carriers.[227] However, cases such as APRA v Telstra revealed that legislative amendment is required. In response, the Digital Agenda Act inserted a new section 39B that clarifies the position of carries and carriage service providers (amongst others) in respect of breaches of copyright by persons using facilities provided by them. Section 39B provides: "A person (including a carrier or carriage service provider) who provides facilities for making, or facilitating the making of, a communication is not taken to have authorised any infringement of copyright in a work merely because another person uses the facilities so provided to do something the right to do which is included in the copyright." As a result, an "innocent"[228] carrier would not be liable for its client's breaches of copyright. The scope of the exemption, however, is uncertain. For example, is the operator of an Internet caf? or an employer who provides Internet access to its staff a "person ... who provides facilities for making, or facilitating the making of, a communication"?

Material form

89. One element of a number of the copyright owner's rights is the concept of material form. It is defined in the Act to include "any form (whether visible or not) of storage from which the work or an adaptation, or a substantial part of the work or adaptation, can be reproduced."[229] This is sufficiently broad to include the storage of content already in digital form and also the digitalisation of other content.[230] Hence the duplication of a digital text file or audio track would constitute a reproduction or copy in material form. Further, the scanning of an image to create a digital file would probably constitute a reproduction or copy in material form.[231]

90. This corresponds to the technology-neutral approach taken in cases such as Roland Co v Lorenzo and Sons and Galaxy Electronics Pty Ltd v Sega Enterprises Ltd.[232] From Roland Co v Lorenzo and Sons[233] it appears that a work saved in digital code on a computer disk is in material form. The binary code was held to constitute "a form of storage from which" the content could "be reproduced".

91. If in Roland the printing on paper of a digital word processing file was considered a reproduction of the literary work contained in the file, then it is logical to assume that the scanning of a printed page of text to create a digital file would also constitute a reproduction. This same reasoning should apply to the digitalisation of visual and auditory material, as well as sound recordings.

Computer generated or assisted creations

92. Although most works have an identifiable author,[234] in some situations the identification of an author can be a problem. In the digital domain, this poses two main issues. There may be material for which no direct human effort can be identified. An example would be weather information generated by a satellite and transmitted to the earth.[235] The author, for copyright purposes, of such material would probably be the person who primarily made the arrangements to facilitate the collection and transmission of the information.

93. Second, there may be circumstances in which both the creator and user of
digital technology appear to be responsible for the results. In Express Newspapers Plc v Liverpool Daily Post and Echo Plc[236] the author of the computer software at issue was held to be the creator of the results from the computer program's use. In this case the software was designed to generate various patterns and sequences. In situations where the technology, such as word processing software, is akin to a tool being utilised to achieve a user's purposes, the results of this effort are likely to be owned by the user. In Roland Co v Lorenzo and Sons[237] Pincus J explained that, in the light of Express Newspapers "obviously the author of the letters and symbols typed onto a word processor is the author of the printout".[238] By contrast, the user of a multimedia work, although influencing which images and sounds are perceived, would probably not hold copyright in any results. It is acknowledged that there will be intermediate cases where the characterisation is much more difficult. Indeed, it is possible that some situations will appear to be cases of joint authorship.

**Jurisdiction**

94. Jurisdictional issues seriously complicate the use or protection of copyright material. Although regulated by a number of international treaties, copyright law is basically national. Each legislated regime is different and there are many countries that have not ratified the primary treaties.[239] Enforcement procedures need to be conducted within the confines of private international law principles where questions such as residency, place of business and jurisdiction arise. Such issues are not unique to the digital domain but are considerably exacerbated in this context.

**The public**

95. Copyright Reform and the Digital Agenda recommended against defining the concept of "the public" for copyright purposes.[240] Following the Digital Agenda Act, to the public has been defined as "to the public within or outside Australia".[241] Although this definition does not particularly clarify matters, a degree of uncertainty in this area of law is justified. The notion of a copyright owner's public needs to be fluid to adapt to further technological changes and to the characteristics of each case.

**Technological solutions**

96. Technological solutions play a major role in the commercialisation and regulation of digital content. In many situations the legal and commercial possibilities discussed later are dependent on the technological solutions below.

97. The attempt to find a technological solution is not new. Throughout the history of copyright law, creators have attempted to ban or restrict the use of technologies that facilitate the exploitation of their work and to encourage the introduction of technologies that assist them to protect their material.[242]

**Encryption**
98. Encryption serves two main purposes in the digital domain. The public key authentication framework below relies on encryption algorithms for its identification and authentication functions.

99. The second purpose of encryption, also used in the public key system, is to facilitate private and confidential communications. Encryption algorithms are used to "scramble" content that will remain unintelligible until the person with the appropriate key "unscrambles" the information. This allows valuable or secret material to be transmitted across public networks (such as the Internet) without concerns about interception.

**Authentication**

100. A serious issue in modern digital content transactions is anonymity. Retailers and producers of content are often totally unaware of the identity of users and consumers. Although privacy is particularly important, authentication and identification is vital at certain points in the transaction cycle. It may be possible to establish a hybrid authentication scheme where the individual's identity is not compromised.

101. Electronic payment systems and electronic contracts require a reliable means of identification. The retailer needs to know that value is being received and the user needs assurance that the provider of content is authorised by the creator and is a credible entity. One of the most promising means of authentication is the public key system. This is based on each participant in the system being allocated two "keys". One of the keys is known as the person's public key and is kept in a publicly accessible registry. The person must keep the other key secret. Using a combination of the two keys it is possible to prove the source, destination and integrity of a message.

**Access controls**

102. As discussed earlier, access controls are likely to provide a key part of the digital content commercial framework. This is true in both subscription and "pay-per-view" regimes. It would also apply to free-access services where the operator wanted to maintain some control of its use. This would be relevant with services that can be customised such as current affairs websites. Offline products could also be protected in such a manner.

103. The most common means of access control are the use of personal identification numbers or codes (known as passwords). When combined with a user's name or other identifier, these allow the operator to control which people may access a particular system. However, other possible access controls exist. Significant research is being undertaken in relation to biometric identifiers. Other possible identification systems utilise portable credentials. These are "an electronically generated packet of digital information which helps uniquely identify a participant in a network transaction". Such information can be stored on a magnetic stripe or smart card. Access control can be enhanced through the use of automated callback systems. First, a user contacts the system into which they want
access. If they are an authorised user, the server disconnects the call and automatically contacts the user at their registered location. This has the added advantage that the server can verify the location of the user, which provides increased assurance of their legitimacy.[259]

Software envelopes

104. An application of the above techniques is the concept of a software envelope. Currently, most digital content is contained in unprotected and easily accessible files. It is possible to "wrap" the content in some form of software security. The simplest example of this would be content encrypted with the recipient's public key.[260]

105. Many conventional software programs allow files to be protected with a password and identifier. Another possibility is that a separate software envelope be created for the particular item of content. That is, a creator may embed a piece of content within a larger item of software. This may include any of the above access controls, as well as payment facilities and tracking systems.[261] The software would be designed so that the digital content is an inseparable part of the program and is not perceivable other than by using the software and following the security measures as designed.[262]

Tracking and watermarking

106. Digital communications links raise the possibility of a creator tracing their material during its lifetime.[263] First, a content provider may watermark content by adding a piece of code or manipulating the existing code.[264] No alteration to the content would be perceivable, as the identifying mark would be essentially unrecognisable.[265] For example, in an audio file a minuscule variation in tone would be beyond the capacity of an ordinary ear to perceive.[266] Yet it would not be possible to remove the mark without damaging the actual content.

107. Recently, new businesses have developed based on online distribution of audio material.[267] A purchaser's name and other identifying information would be attached to the recording.[268] Although this would not stop piracy per se, it should discourage copying because each purchased copy (and any derivative copies made from that purchased copy) can be traced back to the original purchaser. A similar concept is feasible in visual and text files.[269]

108. Each copy or reproduction of the material made available would have a unique mark. Hence, a content provider would be able to trace the work if necessary. Infringing copies could be examined to ascertain which "original" copy was involved in the breach. Two reproductions would be able to be compared to ascertain whether they were originals or copies of each other. With the networked environment online tracing and enforcement may be possible. Some websites already interrogate a user's system and can distinguish the operating system and browser software being used.[270] It is not inconceivable that online systems could examine the watermarks of digital content stored on a user's system for unauthorised reproductions or copies. An intelligent computerised agent[271] may be used.[272]
109. The WCT provides that contracting nations must legislate to protect Rights Management Information (RMI) attached to digital content. This has been incorporated in the Act by the new sections 116A-D. RMI may be attached using similar techniques to the marks discussed above. Information such as the identity of the copyright owner and the terms upon which a licence to use the content will be granted would accompany the material.

**Spoiling**

110. Spoiling refers to the application of physical or logical devices to prevent the use or perception of digital content without the authorisation of the owner or creator.[273] The early software case of Autodesk v Dyason was an example of this. There a dongle was used to restrict unauthorised use of the software.[274] In the future technologies such as smart cards could be used as part of this kind of protection system. The WCT and WIPO Phonograms and Performers Treaty[275] contained provisions preventing the use, production or commercial dealing with devices designed to circumvent technological controls.

111. Logical devices that have been used in the past include secret coloured charts and coded sheets. The software would require certain codes or facts to be entered from the sheet before the program could be used.[276] A more advanced system involves the use of self-deleting codes within the content itself. This is designed to corrupt the files in the event of unauthorised copying.[277]

**Incomplete software**

112. Another implication of the improved communications links is that a creator may release content that is incomplete and dependent on a network system for its operation or perception. A software publisher may decide to only release a limited portion of its software and require users to connect to an online service, provided by them, to use the software. Further, a publisher may decide to "rent" access to an item on software on a time-use basis, instead of "selling" the software in a form that may be used without time-limitation.[278] In the author's opinion this would provide the owner with a particularly effective means to control the exercise of its rights in the software.[279] This concept provides commercially realistic and strong protection for copyright owners.

113. Another variation would be to use portable technologies such as smart cards. Such cards have developed in recent years and are able to carry significant amounts of data and to undertake some computing functions. Sections of data or even particular functions could be stored exclusively on a smart card. Authorised users would be issued with their own personal card. This would mean that the software would be unable to run without an accompanying card.

114. These techniques could be used with other kinds of content also. With the design of new software systems, it may be possible to distribute a film that could only be viewed and heard while the user was connected to an online service.[280]
Some shared issues

115. With any technological security measure, there is the risk that a method of circumventing the system will be devised. Some would even say that such circumvention is inevitable. Even so, the measures may provide significant support to the legal and commercial tools used by the content creator to protect their rights.

116. The most severe problem with pieces of content that are predominantly observed by the user (ie where the interactivity is minimal) is that the perceivable phenomena itself may be recorded and separately stored. If a sound recording, after the access controls are satisfied and any decryption has been carried out, is played using a personal computer, a second program or a physically separate second device can record the sounds produced. Although using a second device may result in a loss of sound quality, a piece of sound recording software within the same computer would be able to record the sounds in high fidelity. The second recording of the sounds involved produces a copy that is free from any access controls and encryption. That is because it is the audible tones that are copied, not the underlying digital code. However, the second recording would not be free of any digital watermarks present in the original recording.

117. A similar process can be used to capture visual images displayed by a digital device. For example, software that records the images displayed on a computer's screen may be used to create a second copy of a digital artwork. Again, the second record of the image would be purely a record of the visual phenomena, not a copy of the original digital code involved. These examples highlight the extreme difficulty involved in protecting digital content following its distribution to the public. A combination of digital watermarking, incomplete content and authentication technologies provide the strongest tools available to a copyright owner for the commercial exploitation of their material.

118. The use of security and access controls over digital content may have serious implications for fair dealing and public debate. At present, no permission is necessary where the use of particular materials is within the conceptualisation of fair dealing. However, if technological protection measures become a standard part of the distribution of content, fair dealing may be severely hampered. Political and public debate, based heavily on access to information, may also be hindered.

Alternate business models

119. In response to the changing realities of the digital domain, a number of new business paradigms have emerged. "Content is already being aggregated, edited, degraded, redesigned, remixed, repurposed, appropriated and quoted, all without a single cent being paid to its original creators, who are having quickly to figure out how to derive an income from it without having to rely on uncollectable royalties or licence fees. Some won't survive, others are coming up with new kinds of highly rewarded, dynamic partnerships with commercial
entities."[289] At present these compete with conventional business models in many industries. This will continue regardless of the recent the legislative changes discussed below. That is because these new business models are a response to the inherent nature of digital content.[290] These models are techniques to commercialise content that is portable, easily manipulated and transported, difficult to trace and difficult to control once distributed.

120. In the absence of satisfactory or favourable legislation, businesses tend to protect their interests using contractual arrangements. This is true in relation to copyright in the digital domain.[291] Warranties and indemnities in respect of copyright breaches may become more common. Combined with more effective tracing and enforcement techniques highlighted above, this may allow copyright owners to design a business solution that provides them with a satisfactory return.

121. It should be noted here that there are non-economic motivations for creating digital content. For example, authors may simply wish to educate the public or disseminate their views on a particular issue. Content may be created for independent purposes. The World Wide Web has developed as a predominantly free access forum showing that such altruistic motivations do inspire the creation and making available of significant quantities of digital content.[292]

Subscription access

122. An early model that is evident in commercial websites is the subscription access regime.[293] Tony Sarno commented that "[e]ventually, if the information is truly valuable, much of it will end up behind a password."[294] Businesses that offer valuable services, for example an archive of digitalised photographs, are able to charge for the right to use the service. Most of these regimes, especially the older ones, tend to be time-based systems. For example, many adult content sites require the payment of a monthly fee for access[295] and many ISPs have an hourly costing system.[296] More direct user pays systems are beginning to emerge, where each use of a service incurs a small cost.

123. A logical development of the access concept is the "micropayment" system. With an efficient and quick payment mechanism, a digital content owner would be able to sell tiny pieces of content (or tiny periods of access to a piece of content) at a small cost.[297] That is, a stock market information service could charge people 0.1 cents per stock price each time they checked the state of the market. With such a small cost, the convenience to a consumer would provide an attractive marketing prospect. There would not be large pressures to protect one's copyright, as such information is largely news-based.[298]

124. Another example of this is the Australian Financial Review, where certain articles can only be viewed by paying a small fee.[299] Site operators will need to protect the copyright in their content to maintain the uniqueness of their site. However, if significant market share and brand recognition could be established, as long as the "micropayment" remained competitive it should be
possible to conduct a profitable service.

125. There are some problems associated with requiring users to pay for access to digital content. Tony Sarno identifies a number of them: "Most users think that they are already paying to reach your site, even if it's free. . . . People get stroppy when they're asked to pay for something they've received free. . . . When people start paying for a service, their expectations are higher. . . . When customers pay, they assume the right to phone support whether you provide it or not. . . . It costs money to charge visitors, whether you're using basic transaction systems based on credit cards or ones using micropayment engines."

It is possible to design a service so as to avoid some of these problems. For example, it is easier to apply charges to a newly created site that to an existing one.

Advertising and promotions

126. Digital age businesses are adapting well-known and common schemes like the advertising model. A website may be available to view and use for free. At the same time, advertising content is displayed for which the site operator receives a payment. This is a digital age version of the "consumer is the product" notion underlying present broadcast regimes.

127. "It is often argued that the economy of attention - not information - is the natural economy of cyberspace. If this is the case . . . the source of commercial value online will be people's attention, not the content that consumes their attention. . . . In other words, content providers may soon have to pay their audience, not the other way around."

128. A number of variations are possible, such as content transmitted to people with a promotional message included. The various email news services are an example of this. As this is a demonstration of the first to market model examined below, there is not a significant concern with protection of their copyright. However, there is a risk that a rival operator (using first firm's material) could set up a similar service with different promotional messages attached.

129. In a less concentrated and focussed sense, many websites are an example of the promotional model. They contain information about a person or business, the services offered and sometimes an example of these for the public to examine. Significant amounts of intellectual property are often given out by such organisations in the hope of attracting custom. Law firms supply many of their current awareness materials for free with the aim of attracting future clients. Digital established the Alta Vista search engine, originally, to demonstrate the power of its computer equipment.

130. Another concept from traditional marketing parlance that has been applied in the digital domain has been the electronic community. Early versions of this concept were online shopping malls. A number of Internet search engines have evolved into "portals" - entry points that can be customised by users where news, entertainment, email and other services are available. In an attempt
to generate consumer loyalty and attract new interest to their products, some businesses are creating digital communities that provide industry-related information and services through their websites.[314] For example, Toyota has set up its electronic Internet community with product information, access to motoring journals and reviews, discussion forums and feedback facilities.[315] Although many "fan sites" have been closed and prosecuted by copyright holders, some creators have encouraged their audiences to share materials using the Internet. This can build the community of the creator's fans and may not adversely affect ratings or merchandise sales.[316]

**Generation of related business**

131. Other organisations "give" away digital content to attract users to their products, to increase market share and to attempt to dominate an industry. The advantage of such a strategy is that if a business can establish a standard or at least a dominant market share amongst consumers, they can offer applications to businesses to better serve those consumers who have the related software. "Allowing access to valuable intellectual property free of charge lies at the heart of the Net. Both Netscape and Microsoft allow their web browsers to be downloaded and used for free, and several other software companies give away their applications online. Many Web sites offer users free and unrestricted access to complex search engines, applications and database management systems."[317] Both Microsoft and Netscape offer, commercially, server software that corresponds with their freely available browsers and Adobe offers publishing software to complement its freely available document reading software.[318] One should not underestimate the importance of recognition and credibility.[319] In the particularly intangible realm of digital content, consumers and businesses will tend to rely on those with whom they have had previous dealings or those who have a public credibility.[320] This in itself will encourage content owners to establish a visible business and will assist them to maintain profitable trade in their content.

**Information services**

132. The "information is an activity" concept illustrates another new business model.[321] In the digital domain the services provided by a business will become the dominant value provided to an end-user. Businesses that provide an attractive service will be able to capture a profitable market, using content as one of their tools. Some content will be shared between competitors and some will be made available for free to the public. This is because these businesses will distinguish themselves through the value they add by the services they provide. An example of this business model would be a company that provides its software to the public for free then sells their services as consultants to customise and implement the software.

**Licensing and collection societies**

133. Collection societies emerged in the physical realm to protect creators and to streamline the use of and remuneration for copyright materials. Similar
societies may emerge in the digital domain.[322] With the efficiencies available using electronic payment and communications systems, some form of collection society representing the owners of digital content may be successful.

134. This could include the implementation of real-time automated licensing, distribution and authorisation systems for digital content.[323] Technology would facilitate a rights management system where the owners[324] could issue short term, narrow scope licences to use particular items of content. With instantaneous links and "micropayments" this may be possible to implement in a commercially viable manner. Technological developments, instead of confounding copyright owners' commercial exploits, may enable the evolution of the licensing regime so that direct, efficient and inexpensive licences may become a reality.[325]

**Electronic commerce**

135. Electronic commerce is a much used but little understood term. In this context it refers to the conduct of business transactions using electronic technologies. The commercialisation of copyright in the digital domain should be seen in the wider context of the development of electronic commerce.

136. Business may seek to simply modernise their operations using digital technologies and methods.[326] However, it is possible that these, of themselves, may revolutionise the industries involved. A number of sectors are now selling traditional copyright-protected material using electronic methodologies.[327] Where the content is already in digital form, significant cost savings may be available by circumventing physical delivery channels.[328] Some software companies now directly deliver their content via Internet transmissions.[329] Although this does not avoid the need for copyright protection, it does allow lower pricing structures which can reduce the incentives to breach copyright. A further possible business model is the direct selling system.[330] Although not new, it is particularly suited to digital age commerce. Instead of relying on wholesalers and retailers, musicians are able to transmit their products directly to their audience.[331] This allows significant cost savings and may strengthen performer-audience relationships. Although copyright in the content may still need enforcement, this is a viable option. Where a strong direct relationship can be established, the public may be unlikely to acquire the sound recordings from another source.

**First to market**

137. In the rapidly changing market for digital content, the party who is the first to provide a particular type of content has a natural advantage.[332] They are able to capitalise on the inherent value of early release, regardless of the steps taken to enforce their copyright. This is especially evident in news services.[333] However, in many industries this is not a viable business model. The longevity of any product of this type is limited but where rapid sequential release is possible, a commercial return is still available.
Industry levies

138. One possible solution that has been utilised in other contexts is the creation of an industry levy scheme. This would involve the collection of a levy from end-users of digital content charged upon some aspect of their use. A similar system was set up at one point in relation to blank audio tapes. However this particular scheme was declared invalid by the High Court in Australian Tape Manufacturers Association Ltd v Commonwealth.

Possible Legislative Changes

Audio-visual material

139. As discussed above, the Act protects cinematograph films at present. This includes conventional films and at least some interactive digital content. However, with interactive non-linear content there are doubts as to the extent of protection available. The Copyright Law Review Committee recommended that the film category be expanded and renamed "audio-visual" works. This was one of the issues left outstanding from the Copyright Convergence Group's report Highways to Change - Copyright in the new communications environment and should be considered further.

Transient copies

140. The issue of a broadly-based exemption for transient copies is considered above. In the meantime, parties may be able to rely on an implied licence, at least to the extent that the making of the transient copy was necessary to utilise the digital content by the only practical means available.

Computer generated material

141. At this point it is not suggested that any amendments be made in regard to the issue of computer assisted or generated material. Whilst this may need to be reconsidered in the future, at present the issue is better dealt with by the general concepts of creation and joint creation, as well as the capacity of parties to regulate their affairs with licences and contractual arrangements.

A new approach?

142. Some have suggested a radical overhaul of the copyright regime and the adoption of a new approach. As with many legislative regimes in place, the copyright law has evolved over time in a relatively piecemeal fashion. The current focus on technology-neutral drafting is to be supported but it would be worthwhile to redraft many existing provisions to reflect this approach. Peter Treyde, a CLRC secretariat director, has been reported as saying that a likely solution would be new laws with broad and open definitions of copyright materials, so that, in the future "nothing worthy of protection would fall between the cracks."
Act. For example one must decide whether an item fits within one of the specific categories before it may be granted protection. In the digital domain many such distinctions are inappropriate, as is the requirement that a piece of content must fall within one of them before gaining protection. It would be more appropriate to redraft the Act to focus on the nature of the content observed or perceived by the user. For example, one could reduce the number of categories to visual works, aural works and sensual works.[342]

144. Other areas of the Act that should be addressed are the communication or presentation rights. At the moment there are distinctions drawn between a range of physical and digital means of providing content. A general right of making available and providing or distributing could replace the existing rights.[343] However, the Copyright Convergence Group concluded that distinctions between certain actions like performance and transmission should be maintained.[344] The right to repeat or reproduce any existing presentation of a work would remain with the copyright owner.

**Conclusions**

145. The digital domain has begun to seriously challenge the copyright system, both in Australia and abroad. We cannot simply rely on legalistic interpretations because technological developments may marginalise copyright as a force in creative and commercial affairs.

146. Dramatic growth in broadband communications, convergence of technology systems, digitalisation of content and the globalisation of human interactions have changed the context within which copyright operates. Copyright exists to regulate the use of content and to balance the rights of creators and the general public. In the digital domain, there is some uncertainty whether copyright is the most suitable regime to undertake this function.

147. Due to the nature of digital content, a combination of commercial, technological and legal solutions will be utilised to manage copyright material. Owners need to explore the potential for the application of technological solutions that substantially discourage or even prevent unauthorised use and dealings. Digital watermarks and content that relies on network access provide two of the most promising examples of these.

148. Business entities can be expected to adapt existing schemes and to develop new ones to deal with the challenges of new environments. This has been and will continue to be the case in the context of digital copyright. Some of the business solutions are such that they would be successful in the absence of technological or legislative developments. However, most of them rely on technological measures for their efficacy. Access and advertising based regimes provided the first generation of digital content enterprises. Evolution of cross marketing, first-to-market and service focussed firms can be observed at present. In the future, electronic commerce and virtual community centred organisations will probably dominate.

149. The legislative amendments flowing from the Digital Agenda Act will not, of
themselves, solve the dilemmas facing regulators and copyright owners. However, measures such as the new technology-neutral communication rights will provide greater certainty for all and more flexibility for copyright owners. Steps should be taken to clarify the treatment of non-communication transient copies and audio-visual material for the same reasons.

150. The argument of this paper is that, even with the recent amendments, copyright will have a reduced role in the future of digital content. That is not to say that the end of copyright is nigh - in fact, to paraphrase Mark Twain, rumours of its death have been greatly exaggerated.[345] A combination of technological measures and new business paradigms will facilitate the use and commercialisation of content in the digital domain. Copyright will continue to play a role in this task, albeit a reduced one.

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Notes

[1] The phrase digital domain is used in this paper to refer to the phenomena of this era that most forms of information and content, apart from those that are demonstrably physical, can be represented in digital code.

[2] Ian McDonald, "Digital publishing and copying: issues for authors and publishers" at 87


[4] Robyn Coyle, "Copyright & Cyberspace - Divergent Notions"

[5] Virtual reality has been described by some as an interactive world or a "consensual hallucination" - Nick Weston, "Copyright and Virtual Reality Technology: A Bandaid on the Bleeding Edge" at 72

[6] Antonio Mille, "Copyright in the Cyberspace Era" at 570

[7] above

[8] Dr Andrew Christie, "Towards a new Copyright for the New Information Age" at 146; see also Copyright Convergence Group, Highways to Change - Copyright in the new communications environment at 4

[9] In the context of text files, the Rich Text Format (RTF) has become a de facto standard for some purposes.

[10] Angela Bowne, "Trade Marks and Copyright on the Internet" at 135. As discussed
below, this has serious implications for copyright owners’ reproduction or copying rights.

[11] All references to legislation should be taken to be references to the Copyright Act 1968 (Cth) unless otherwise annotated.

[12] However, computer software posed some problems when it first received protection under the copyright law - see below

[13] Compact Disc

[14] Natalia Yastreboff, "Copyright for online databases on the Internet - Part I" at 36 [quoting from the Highways to Change - Copyright in the new communications environment report]

[15] See CNet news feature, "When World Collide".

[16] McKeough and Stewart at [9.3]

[17] Highways to Change - Copyright in the new communications environment at 3, citing the 1992 OECD report, Telecommunications and Broadcasting: Convergence or Collision

[18] (1997) 37 IPR 495

[19] (1997) 37 IPR 495 per Sheppard P at 512. Such a device will dominate our communication, information and entertainment activities in the near future. The capacity of modern personal computers to fulfil entertainment, communication and information functions is a precursor of the future impact of a Central Information Appliance.

[20] Shane Simpson, "Moving Towards Copyright Control on the Internet" at 200

[21] Wright & Greenleaf, "Law, Convergence and Communicative Values on the net"

[22] Copyright Convergence Group report Highways to Change - Copyright in the new communications environment; Copyright Reform and the Digital Agenda (Proposed Transmission Right, Right of Making Available and Enforcement Measures) Commonwealth Discussion Paper

[23] Such as a broadly defined category of audio-visual material, transient copies (other than those in the course of communications), jurisdiction and treatment of computer-generated works.

[24] Although strictly speaking the term is a misnomer, it captures the concept of a cross-content presentation. The media involved (the form of presentation or storage) is actually singular (typically a CD-Rom), it is the contents of the storage media that have multiple characteristics.

[25] Jenny Zaverdinos, "Legal Aspects of Multi-media - Enforcing Copyright" at 151

[26] from the preamble to the WCT

[27] bits per second (bps) is a measurement of the speed of a flow of data across a communications link

[28] This is based on a land transport analogy. Current communications are likened to a narrow street and are compared to the future systems being a broad highway (also known as the superhighway). The label broadband is also based on a pipeline analogy. Previous generations of communications links have been likened to a narrow pipe through which only small amounts of data can be transported at any one time.


[30] Copyright Reform and the Digital Agenda (Proposed Transmission Right, Right of Making Available and Enforcement Measures) at 3.48

[31] Howard Seigel & David Stein, Music Performance Rights on the 'Net - Continued Uncertainty Over 'Cybercasting

[32] Video on demand is considered to be a service that will encourage mass-market acceptance and use of Internet-type technologies (known colloquially as a "killer application").

[33] Ralph Oman, "New Global Treaties Protect Copyrights Online - Major revision of Berne gives new rights to creators and performers"; Angela Bowne at 135; Shane Simpson, "Moving Towards Copyright Control on the Internet" at 200; Ian McDonald at 87. For this reason, alternative business models such as those discussed below may become the standard means for creators ensuring an adequate return from their endeavours. It appears that copyright will only be able to provide partial protection to such creators.

[34] Adele Ferguson and David James, "Globalisation, Ready or Not"
[35] In times past local producers had inherent advantages in the servicing of their domestic market. Most local producers have recognised the need to compete with international firms to maintain market share and profitability.
[36] At least few natural or physical barriers
[37] Mark Davison, “Parallel Importing of Copyright Material in a Digital Age: why it should be lawful and why it may never be” at 271
[38] Adele Ferguson and David James; Australian Taxation Office, Tax and the Internet; Joint Committee of Public Accounts and Audit, Internet Commerce - to buy or not to buy
[39] This refers to observations of each of the five senses - sight, hearing, smell, touch and taste.
[40] ie in binary code
[41] see below
[42] As discussed above, the copy of digital content is of identical quality. The copy can be made with significant expense or effort and is particularly difficult to identify and police. Finally, practical advantages of using the original item, such as the convenience of a published book, do not occur in the digital domain.
[45] There are eight basic categories of works and non-works dealt with by the Act. Part III deals with literary, dramatic, musical and artistic works; Part IV deals with sound recordings, cinematograph films, broadcasts (sound and television) and published editions of works. To receive copyright protection, material must be able to be categorised into one of these.
[46] See Galaxy Electronics Pty Ltd v Sega Enterprises Ltd (1997) 37 IPR 462; discussed in “Other digital material” below
[47] [1916] 2 Ch 601 at 608
[48] See “Other digital content” below
[49] L Meville, "Computer Software and the Relevance of Copyright" at 360
[50] A literary work was defined to include "a written table" and the Act provided that “writing” meant “a mode of representing words, figures or symbols in a visible form”: section 10(1).
[51] (1983) 50 ALR 581 (first instance), (1984) 53 ALR 225 (Full Federal Court) and (1986) 161 CLR 171 (High Court)
[52] the "source" code
[53] the "machine readable code" or "object" code
[55] (1986) 161 CLR 171 at 184. This differs from the Full Federal Court reasoning that the object code was a translation of the source code. This approach was strongly reasoned and would have provided a sound resolution of the dispute as well as protecting the object code. The legislative amendments cause a similar result (see below).
[56] This was convened in response to Beaumont J’s first instance decision in Apple Computer - see McKeough & Stewart at [9.12]
[57] section 10(1) Copyright Act
[58] section 10(1) (as it currently reads). The original longer and more technology specific definition was replaced by this definition by the Digital Agenda Act.
[59] (1992) 173 CLR 330
[60] McKeough and Stewart at [9.13]
[61] It also tested for the dongle signal constantly during the program’s operation and would cease operations if the appropriate signal was not received
[62] The sequence was 128 bits in length
[63] at 347
[64] per Mason CJ, Brennan & Deane JJ at 336
[65] at 344
[66] at 347
Copyright protects the manner in which a creator expresses a particular idea but will not protect the idea itself. This is known, in respect of software copyright, as the "look and feel" issue. See for example Wheland Associates v Jaslow Dental Laboratory Inc (1986) 797 F 2d 1222; Digital Communications Associates Inc v Softklone Distributing Corp (1987) 10 IPR 1; Apple Computer Inc v Microsoft Corporation (1992) 24 IPR 225 (1996) 33 IPR 194 (1997) 37 IPR 436 (1997) AIPC 91-350. Pseudocode is a plain English description of the tasks that a particular set of computer code carries out.

Colin Golvan "Court rules out reliance on pseudocode in computer case" at 85

As merely an idea, the pseudocode does not merit copyright protection in its own right.

see the section on written materials below

This is subject to the threshold tests of creativity, authorship and lack of publication.

Using mapping functions, the computer would produce an image of the user's character in the setting that corresponded to whichever scene the user had manoeuvred to at that point in time.

ie the instructions

ie the data

To what extent is the result of the combination of the user's interaction and the program itself the creation of the programmer and to what extent is it the creation of the user?


Denise McBurnie, Anthony Muratore & David Shearman, "Copyright update" at 22

See "Audio-visual material" below.

Lewis Lee & J Scott Davidson at 78-9

(1991) 22 IPR 245 (see below)
in the section headed "software"

(1992) 173 CLR 330

The code was represented by a 128-bit sequence - a digital sequence of 1's and 0's. Albeit a rather longer sequence of 1's and 0's, it is no different in nature.

However, the code in the dongle was considered by the majority to be a part of a larger piece of computer software. It is uncertain whether a digital file of a visual image could be considered to be part of a larger piece of software, such as package of commercial art software.

at 253

[1982] Ch 119

References by the court to the literary enjoyment of works evidences the underlying attitude of the court here.

Cf Apple Computer Inc v Computer Edge Pty Ltd - at first instance and in the High Court (see above)

See the cases involving Total News and Ticketmaster: Angela Bowne above.

Editor - Shetland News, What the judge said in "The Shetland Times" Case; News Section: National News [1997] 2 EIPR at 49

That is, when viewing the defendant's site, a person would see a border created by the defendant and inside this a story actually residing on the server of the plaintiff.

The plaintiff also brought actions under heads of misrepresentation and passing off.

Editor - Shetland News What the judge said in "The Shetland Times" Case.

Lewis Lee & J Scott Davidson at 59

See below under the heading "Reproduction and copying"

as opposed to a direct examination of the means used by the artist

This may be so even where the second programmer has seen the observable phenomena produced by the first program and has sought to imitate it in their program.

Whelan Associates v Jaslow Dental Laboratory Inc (1986) 797 F 2d 1222; Broderbund Software Inc v Unison World Inc (1986) 7 IPR 193; Digital Communications
Associates Inc v Softklone Distributing Corporation (1987) 10 IPR 1
[105] section 10(1)
[106] see above "Other digital material"
[107] Media Technology Group, Allen, Allen & Hemsley, "Current Information Technology Issues in the Pacific Rim" at 20
[112] Multimedia is content containing elements of more than one type of material, such as both text and audio-visual) - see above under the heading "Convergence"
[113] News Section: National Reports [1997] 9 EIPR at 232. It can also be said that the images themselves were only created immediately prior to them being presented by the computer itself.
[114] No 95 C 0719, ND Ill May 28, 1997 [Cited in Meeka Jun, "Mortal Kombat over Digitized Images in Video Games"]
[115] The filmed sequences were later digitalised and incorporated in the computer game. Further, the game would probably receive protection as a computer program. See Meeka Jun above
[116] section 10(1)
[118] Lewis Lee & J Scott Davidson at 79
[119] ie using photocopying technology
[120] section 10(1)
[121] (1984) 2 IPR 456
[122] This appears to follow the same approach as the early cases on literary works (see above) which focussed on works that provided literary enjoyment and pleasure.
[123] at 465
[125] That is, if a digital image or visual creation is "artistic", it should receive protection under the Act.
[126] see under "material form" below
[127] Greenfield Products v Rover-Scott Bonnar (1990) 17 IPR 417; Wham-O Manufacturing Co v Lincoln Industries Ltd [1985] RPC 17. It may be interesting to examine whether three-dimensional rendering using graphics software and virtual reality systems could constitute sculptures. Unfortunately that question is beyond the scope of this paper.
[128] at [624] - quoting from the Copyright Act 1905, section 4
[129] Concise Oxford Dictionary
[130] section 10(1)
[131] section 10(1)
[132] The section makes no reference to the aesthetic qualities of the sounds. There is not requirement for a certain artistic or creative quality.
[133] See below under the heading "Material form"
[134] section 87.
[135] The basic right given to the communicator of creative material is to prevent the reproduction of the broadcast or publication: sections 87 & 88.
[136] Literary, dramatic and musical works - reproduction in material form, publication, performance in public, communication to the public, commercial rental arrangements (in limited circumstances) and to make an adaptation: section 31(1). Artistic works - reproduction in material form, publication, communication to the public: section 31(1). Sound recording - copying, causing the recording to be heard in public, communication to the public and commercial rental arrangements: section 85(1). Cinematograph film -
copying, causing the film to be heard and seen in public, communication to the public: section 86. Television and sound broadcasts - to make a film of a television broadcast, to make a sound recording of a sound broadcast and to re-broadcast it or communicate it to the public otherwise than by broadcasting it: section 87. Published editions of literary, dramatic and musical works - to make a facsimile copy: section 88.

sections 36(1) & 101(1)

see above

ie from source code to object code

Duplication will be used to refer to both copying and reproduction rights, where they can be considered together.

Copying is defined in the limited context of cinematograph films (section 10).

Lewis Lee & J Scott Davidson at 77

Concise Oxford Dictionary

see above

See "Material form" below

works & sound recording - section 29(1)(a)&(c)

cinematograph film: section 29(1)(b)

Similar to the new right to "make available to the public" discussed below under the heading of "Transmission and making available", material can be considered to be published regardless of whether people have read or viewed it.

However, it may also be characterised as the provision of a single reproduction or copy. This would depend on the court's conclusions as to the extent and nature of the operation.

But see, Rank Film Production v Colin S Dodds (1983) 2 IPR 113 (discussed below)

(1997) 38 IPR 294 - see below for a more detailed discussion of APRA v Telstra, in relation to the broadcast and transmission to a diffusion service rights

at 303

at 303

ie the owners of the businesses playing music on hold to their clientele

at 303-4

at 303

(1985) 7 IPR 160; This had been done to demonstrate the capabilities of the systems being offered for sale.

(1964) 5 FLR 41. The court also discussed the process by which someone became a member of the relevant audience.

(1983) 2 IPR 113

section 27(1)

ie heard and/or seen

sections 85 & 86

section 27(2)

section 27(3)

section 10(1)

However, it may be transmitted to "to the public" in the light of Telstra v APRA and Rank Film Production v Colin S Dodds.

(1993) 26 FCR 131 at 139 [cited in Copyright Reform and the Digital Agenda at 4.8]

section 27(3).

section 25(1). That is not to say that they are limited to broadcasts made to conventional radio and television devices. Transmissions received by telephones have been held to constitute broadcasts for the purposes of the Copyright Act 1968 in Telstra v APRA.

Replaced by the communication right by the Digital Agenda Act.

"Broadcast' means a communication to the public delivered by a broadcasting service within the meaning of the Broadcasting Services Act 1992;"; "Sound broadcast" means sounds broadcast otherwise than as part of a television broadcast" and "Television broadcast' means visual images broadcast by way of television together with
any sounds broadcast for reception along with those images": section 10(1).

[172] see section 87

[173] (1997) 38 IPR 294 - see above in regard to the discussion of APRA v Telstra and the concept of “to the public”

[174] Such as where callers to Telstra offices were placed on hold and music was played to them.

[175] The offending conduct occurred well before the commencement of the Digital Agenda Act.

[176] Per Dawson & Gaudron JJ at 300 & 304, Toohey J at 304, McHugh J at 316, Kirby J at 333-4 and 340.

[177] Media Technology Group, Allen, Allen & Hemsley at 8-9

[178] Simon Gilchrist, Telstra v APRA - Implications for the Internet


[180] Copyright Reform and the Digital Agenda 4.38

[181] see above

[182] Highways to Change - Copyright in the new communications environment recommendation 1, para 1.3 [at page 9]; Yee Fen Lim "Internet Service Providers and Liability for Copyright Infringement through Authorisation" at 192

[183] Copyright Reform and the Digital Agenda (Proposed Transmission Right, Right of Making Available and Enforcement Measures) at 4.15

[184] WCT

[185] Copyright Reform and the Digital Agenda at 4.11

[186] Copyright Reform and the Digital Agenda at 4.13 and Appendix three at 3.7

[187] This is because optical technologies use light rather than electrons in the carriage of the signal or data.

[188] Natalia Yastreboff, "Copyright for online databases on the Internet - Part I" at 41

[189] Copyright Reform and the Digital Agenda at 4.84

[190] Howard Seigel & David Stein above

[191] Lewis Lee & J Scott Davidson at 135

[192] ie the sound recording as a whole, or substantially as a whole, object. Obviously small, component sound recordings are transmitted, saved and played.

[193] Lewis Lee & J Scott Davidson at 136

[194] ie by clicking upon the icon with a mouse

[195] ie an icon

[196] Michael Pendleton above

[197] 991 F 2d 511 (2nd Cir 1993) [cited in Ronald Katz & Lateef Mtima, "Uncertainty Reigns in software cases"]


[199] Copyright Reform and the Digital Agenda at 4.54

[200] Copyright Reform and the Digital Agenda at 3.40

[201] Copyright Reform and the Digital Agenda at 4.56

[202] ie the hard disk

[203] ie RAM memory

[204] Stephen Peach & Mia Garlick above

[205] Copyright Reform and the Digital Agenda at 4.57-58

[206] Eg RAM copies of computer software on a user's system.

[207] section 36 and 101. Furthermore, a creator has the right to assign their rights under the Act to another person: section 196(1). This has the practical effect of a permanent licence with a delegated power for the assignee to grant licences.

[208] A copyright owner may utilise a shrinkwrap licence, where the terms of the licence are wrapped in plastic packaging and are only available to the consumer after purchasing the product. Although under general contract law the terms must be agreed between the parties prior to the purchase, as opposed to being unilaterally imposed by one party later, ProCD Inc v Zeidenberg [(1996) 86 F.3d 1447 (7th Circuit) - cited in Copyrites No 24 and by in Angela Bowne at 141] held that a shrinkwrap-type licence is
That is, they had provided copies to the public for the purpose of evaluation and required that, should a consumer wish to continue using the product after a trial period, they would make a payment to the company.

Michael Pattison & Moana Weir, “First case on the legal protection of shareware - Trumpet v Ozemail” at 67

Media Technology Group, Allen, Allen & Hemsley “Current Information Technology Issues in the Pacific Rim” at 17

Lewis Lee & J Scott Davidson at 84

Media Technology Group, Allen, Allen & Hemsley, “Current Information Technology Issues in the Pacific Rim” at 14

At least as long as they are not performing it.

“Reforming Copyright for the Digital Age - Everyone’s Horse on the Wrong Course”

BP Refinery (Westernport) Pty Ltd v Shire of Hastings (1977) 16 ALR 363; JW Carter & DJ Hartland, Contract Law in Australia

Section 13(2) provides "the exclusive right to do an act . . . includes the exclusive right to authorise a person to do that act".

Gibbs J at para 10, Jacobs J (with whom McTiernan ACJ agreed) at para 9

(1995) 33 IPR 132

(1993) 839 F Supp 1552 (MD Fla) [cited in Angela Bowne at 140]

(1994) 857 F Supp 679 (ND Cal) [cited in Angela Bowne at 140]

Beth Lipton, “Net Music pirates face lawsuits”

Stephen Loughnan at 19

Copyright Reform and the Digital Agenda at 4.88; Highways to Change - Copyright in the new communications environment at 27

IE unaware of and not involved in the breach.

section 10(1)

Lewis Lee & J Scott Davidson at 79

Lewis Lee & J Scott Davidson at 79; but see the draft CLRC report on the Protection of Computer Software [cited in Copyright Convergence Group, Highways to Change - Copyright in the new communications environment at 23]

See the discussion of the WIPO proceedings under the heading “Transient copies” in the section "Possible legislative changes"

(1992) 22 IPR 245

or group of authors

see McKeough and Stewart at [9.21]

(1985) FSR 306 [cited in Roland at 252]

(1991) 22 IPR 245

at 252

ie the Berne Convention for the Protection of Literary and Artistic Works 1886 and the WCT

Copyright Reform and the Digital Agenda at 4.41

Section 10(1).

John Chesterman & Andy Lipman at 85

Lewis Lee & J Scott Davidson at 58

John Chesterman & Andy Lipman at 105

See below for an explanation of the public/private key system. As it is possible to send a message with confidence that it may only be received and deciphered by the intended recipient, it is possible to encrypt a document and send the instruction (and any necessary key) in an attached message ciphered with the recipient's private key. Thus, the recipient would receive the attached message, ascertain the encryption instructions and be able to decrypt the main document.

"Blind" digital signatures are a possible example of such a scheme.
Using third party organisations such as Visa may be one solution that enables the consumer to remain relatively anonymous. As long as the retailer or creator receives value from a reliable source this may be sufficient. A body such as Visa should be able to authenticate the legitimacy of the vendor also.

Integrity of a message in this context refers to the confidence a person can have that a message has not been altered since it was completed by the sender.

Each party involved in the public/private key scheme has two keys associated with them (their public key (A) and private key (B). Using a mathematical relationship (the RSA algorithm) these two keys can be used to cipher and decipher messages. A message ciphered (scrambled) with A can only be deciphered (unscrambled) with B. It is not possible to cipher and decipher a message with the same key. Further, the nature of one key cannot be discovered from the other key in the pair. Hence anybody can send a confidential message ciphered using A (this key, being the public key, is freely available) without fear of interception because only by using B can the message be understood. The person associated with A is the only one with access to B. The corollary is also true.

If the sender of a message wanted the recipient to be sure that the message had come from the sender and nobody else, the sender would cipher the message with B. With the ciphered message there would be a "plain-text" instruction that A should be used to decipher the main message. The recipient would attempt to decipher the main message using A and, if successful, would know for certain that the message originated from the sender. That is because no other person has the ability to encode a message such that A could decode it (only by using B can this be done). Finally, the recipient can be sure that the message had not been altered after the original sender sent it. If the communication had been tampered, deciphering would only produce nonsense characters and symbols.

Before distribution to an individual user, word processing software could be specifically encoded to require the user to identify themselves (ie by a unique password) each the application is used.

They are known as personal identification tokens. See Lewis Lee & J Scott Davidson at 56-7

A disadvantage of the automated callback system is that is discourages mobile access to the system (ie where a user is able to move from one place to another and still access the system).

See above. If encrypted in this way, the file would only be accessible to the holder of the corresponding private key (ie the user). However, once decrypted, the file would be able to be communicated to third parties free of any controls.

Some Internet sites provide downloadable .exe (executable software programs) instead of pure content files such as a word processing document or picture file. For example, the World Trade Organisation website (www.wto.org)

Blue Spike, Giovanni Digital Watermarks Create Audit Trail

Scott Moskowitz, So this is Convergence? - Technical, Economic, Legal Cryptographic, and Philosophical Considerations for Secure Implementations of Digital Watermarking; see also Record Industry Association of America press release.

Elizabeth Veomett, "Digital Security: Just add watermark"

It would be of such an in significant nature that the human ear would be unable to distinguish the mark from other pieces of random noise and tone in any recording.

Elizabeth Veomett above

Through a watermark within the binary code.
Peter Cassidy "How new 'digital watermarks' can protect your on-line images"

This includes the specific versions used called as a "knowbot"

Examples of these include the "spiders" currently used for some search engines. See <www.webcrawler.com>

Copyright Reform and the Digital Agenda at 4.6; John Chesterman & Andy Lipman at 90

see above; John Chesterman & Andy Lipman at 102

also concluded in 1996

John Chesterman & Andy Lipman at 102

This has been described as an Application Service Provider (ASP) model.

Circumvention techniques do exist - see "Some shared issues" below.

However, circumvention techniques exist. See below under "Some shared issues"

For example, it has been reported that an advanced encryption algorithm, based on a 56-bit key, has been "easily cracked in some high profile demonstrations" - Courtney Macavinta "White House eases cryto limits"

John Chesterman & Andy Lipman at 100

ie a musical

Using such a process it is the sounds produced by the first recording that have been copied, not the underlying digital code. However, the watermark is contained within the sounds themselves (ie within the pitch and rhythm of the songs recorded). Any duplication of these sounds will then contain the watermark. See Elizabeth Veomett above; Jian Zhao, Digital watermarking is the best way to protect intellectual property from illicit copying; Peter Cassidy above

By storing the pattern of pixels used in the image.

A discussion of the concept of fair dealing is beyond the scope of this paper. For an analysis of the topic, see Colin Golvan, An Introduction to Intellectual Property law; Donald F Johnston, Copyright Handbook; Jerome Miller, Applying the new copyright law: A guide for educators and librarians

Copyright Reform and the Digital Agenda at 4.62; News Section: National Reports [1997] 9 EIPR 229 at 231; Anthony Mason, "Developments in the Law of Copyright and Public Access to Information" at 637; Department of Communication and the Arts, Copyriles - No 28; Courtney Macavinta, "House clears copyright Act"

Anthony Mason at 637-638; Thomas Vinje, "The New WIPO Copyright Treaty: A Happy Result in Geneva" at 236

Chris O’Hanlon, "Get copied, be noticed"

See "features of digital content" above

Laurence Tellier-Loniewski & Alain Bensoussan, Digital Broadcasts raise new Copyright Issues - technology is forcing changes in moral rights, economic rights and contract rights; Stephen Loughnan, "Service Provider Liability for User Copyright Infringement on the Internet" at 22; Dr Andrew Christie at 151; Sam Ricketson, The Challenges to Copyright Protection in the Digital Age; Jennifer Douglas, "Too Hot to Handle? - Copyright Protection of Multimedia" at 103-4

or at least non-commercial

Tony Sarno, "Making Web sites pay"; Beth Lipton, "Net Music pirates face lawsuits"


above

Courtney Macavinta, "Net firms mix sex, stock quotes"

See BigPond <www.bigpond.com> and Ozemail <www.ozemail.com.au>

a "micropayment"

This is another example of the "first to market" model - see below.

See <www.afr.com.au>
[301] Tony Sarno above
[302] Tony Sarno above
[303] Sam Ricketson above; Shane Simpson, "Moving Towards Copyright Control on the Internet" at 201
[304] See for example the Sydney Morning Herald Online <www.smh.com.au>
[305] John Perry Barlow above
[306] Chris O'Hanlon above
[307] ie Infobeat <www.infobeat.com>
[308] This is analogous to the Shetland Times dispute discussed earlier.
[309] In the physical realm Tommy Hilfiger is reported to budget for a "20 per cent loss of inventory to pilferage as a marketing exercise". See Chris O'Hanlon above
[310] or even to other digital/non-physical operations
[312] It is reported that Digital established the Alta Vista engine to demonstrate how fast and reliable its mainframe computer systems are - see <www.altavista.com>
[313] Jim Hu, "Portals offer alternative gateways"
[314] CNet News "The neighbourhood rush"
[315] See <www.toyota.com.au>
[316] See for example the "South Park" fan websites - Beth Lipton, "The price of free expression"
[317] Chris O'Hanlon above
[319] The business' image and reputation in the marketplace is known in traditional business models as "brand power".
[320] Shane Simpson, "Moving Towards Copyright Control on the Internet" at 202
[321] John Perry Barlow above; Gordon Hughes, "Exploiting Computer Software" at 204; Shane Simpson, "Moving Towards Copyright Control on the Internet" at 201; United States Report at 192
[322] Laurence Tellier-Loniewski & Alain Bensoussan; Dominic Bencivenga, “Protecting Copyrights - Law and Technology Out of Sync in Digital Age”
[323] Antonio Mille at 575-6
[324] or more probably a digital collection society representing owners
[325] APRA and CAL are already attempting to apply their current licences to the digital domain or to create new kinds of licences for this context.
[326] Shane Simpson, "Moving Towards Copyright Control on the Internet" at 200
[328] See above under "Digital watermarks" the discussion of online music distribution. See also Thomas Vinje at 236; Stephen Peach & Mia Garlick, "Copyright and the Digital Agenda: An analysis of the proposed changes”.
[330] This has some interesting implications for rules such as parallel importing - see Mark Davison at 274; Sue Lowe, "The world is your bookstore"
[331] David Higgins, "Pirates of the High C’s"; Joe Casimir, "The suits won't wear tailor made"; Audio-Visual Copyright Society Ltd v New South Wales Department of School Education (1997) 37 IPR 495 at 512; Shane Simpson, "Moving Towards Copyright Control on the Internet" at 200; Highways to Change - Copyright in the new communications environment at 65
[332] Megan Richardson and Steven Macchi, "Intellectual Property Cases in the Australian High Court: An Economic Reappraisal" at 133-4
[334] John Chesterman & Andy Lipman
[335] eg telecommunications costs or computer storage media
[336] (1993) 176 CLR 480
[337] Jenny Zaverdinos at 160-61
Sensual works may include new technological developments that provide the taste, smell and touch senses with stimuli.

A copyright owner would still be able to authorise specific types of action such as a broadcast or publication by different people under the licensing and assignment power.

Eg Robyn Coyle has suggested a Convergent Technologies Act in "Copyright & Cyberspace - Divergent Notions" at 69; see also McKeough and Stewart at [9.22]

Mark Twain is reported to have said in an 1897 Cablegram that “The reports of my death are greatly exaggerated.”