

Intellectual Property in a Cyber World

Intellectual property is the legal asset in innovation. The value of innovation to a business depends on the extent to which that innovation is directed to the needs of the relevant market. If an innovation meets that need effectively and uniquely, it can provide that business with substantially increased revenue and margin. Innovation can thereby be the key source of business growth and profitability. The intellectual property in that innovation therefore needs to be identified and protected.

The critical nature of intellectual property is just as relevant in a cyber world as it is in a physical world. However, the technology inherent in a cyber environment can challenge the fundamental concepts of intellectual property law. Information technology (**IT**) and artificial intelligence (**AI**) raise particular issues for copyright and patent law.

Copyright subsists in a unique work expressed in material form. It is an accepted principle of copyright law that the electronic representation of a copyright work constitutes an expression in material form. However, under section 32 of the Australian Copyright Act (Cth) (1968), copyright can only subsist in a work created by an “author” which implies the input of intellectual effort. This raises the question as to whether copyright can subsist in works created by the data processes of computer algorithms. AI has been used to create drawings, tables and even music. In one instance, an entire musical production has been devised based entirely on AI. More importantly, AI can have the capacity for a “deep learning”, function under which artificial neural networks have been developed to mimic the networks of the human brain in order to process data.

The exponential growth of AI can pose fundamental issues for the traditional concept of copyright. In Australia, the general position is that “intellectual effort” must be involved in the creation of a work in order for copyright to subsist in that work. In *Ice TV Pty Limited v Nine Network Pty Limited* (2009) 239 CLR 458, it was held that the creation of a television program timetable via an algorithm constituted use of the relevant algorithm “as a tool”. The author of the work was therefore the person using that tool. In *Acohs Pty Limited v Ucorp Pty Limited* (2012) 201 FCR 123, the Full Federal Court found that copyright did not subsist in data sheets created by a computer program because there was no human intervention in that creation.

The Australian position on the necessity for human intervention in the creation of a copyright work is broadly consistent with US and EU law. However, in the UK there is a specific provision in Section 9(3) of the Copyright Design and Patent Act (1988) (UK) which states that: “in works which are computer-generated, the author

will be taken to be the person by whom arrangements for the creation of the work are undertaken”. Similar legislative provisions exist in New Zealand, Hong Kong, India and Ireland. A comparable legislative provision has been recommended in Australia by the Copyright Law Review Committee but it has not yet been enacted in legislation in Australia.

The foregoing UK provision inherently recognises the subsistence of copyright in machine-generated works but as the “author” becomes further separated from the creative process, it becomes more difficult to identify the “intellectual effort” involved. This difficulty is magnified with regard to works created by “deep learning” machines that effectively produce creative works independently of any human involvement. It has even been argued that the true author of a work created by a “deep learning” machine is the machine itself. Such a notion strikes at the very heart of the traditional concept of copyright and raises fundamental issues as to the meaning of the “author” of a machine-generated work.

Inventions created by AI also pose fundamental issues for patent law. AI is currently being used by the World Intellectual Property Organisation (**WIPO**) to assess patent claims. AI offers real advantages to WIPO Examiners in their analysis of the prior art to assess the novelty of an invention. AI can even be used to make assessments of the patentability of an invention in the light of decided case law. In this respect, AI is entering the realm of professional legal advice, traditionally provided by lawyers.

AI can also be employed to provide options and variations of existing inventions to ostensibly create new and patentable inventions. However, the development of such derivative inventions by AI raises the issue of the “obviousness” of such inventions. The patentability of an invention is generally assessed by Examiners according to the standard of “persons skilled in the art” and it can be assumed that such Examiners have access to AI technology in making their assessments. If an invention can reasonably be derived by use of AI technology, an Examiner, equipped with similar AI technology, might therefore find that the invention is not patentable because it was “obvious”. In this regard, AI can be a two-edged sword for prospective patentees.

The proliferation of IT in modern society is occurring at an exponential rate. The concept of the Internet of Things, involving Human to Machine and Machine to Machine interaction, is rapidly leading to the creation of Big Data under which the emphasis is shifting from the ownership of the technology to the ownership of the data itself.

At the same time, there has been a profound shift in modern society from an emphasis on physical capital to an emphasis on intellectual capital. A few decades ago, the largest corporations in the United States were vehicle manufacturers, mining/resources companies and financial services suppliers. Today, the five largest companies by capitalisation in the United States are Apple, Alphabet, Microsoft, Amazon and Facebook. The information technology of the foregoing companies pervades virtually all sectors of economies worldwide. Identifying and protecting the intellectual property in this information technology and data presents a compelling challenge for lawyers.



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