# The Free Trade Agreement Provisions in Chapter 17 relating to Copyright and Patent Law
# Submission to the Senate Select Committee on the Free Trade Agreement

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This document is at http://www.anu.edu.au/people/Roger.Clarke/II/FTA17-SSCFTA-040430.html

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> *... we come from a tradition of 'free culture' - not 'free' as in 'free beer' ... but 'free' as in 'free speech', 'free markets', 'free trade', 'free enterprise', 'free will' and 'free elections'. A free culture supports and protects creators and innovators. It does this directly by granting intellectual property rights. But it does so indirectly by limiting the reach of those rights, to guarantee that follow-on creators and innovators remain as free as possible from the control of the past ... Lessig L. 'Free Culture' Penguin, 2004, p. xiv*

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## 1. This Submission

I am a longstanding consultant in the strategic and policy aspects of eBusiness, information infrastructure, and dataveillance and privacy. My background is detailed at http://www.xamax.com.au/CV/RC.html and http://www.anu.edu.au/people/Roger.Clarke/#Person.

I have Honours and Masters degrees in Commerce (Information Systems) and a doctorate in Information Systems. I spent a decade as a senior academic at the Australian National University. I am currently:

- a Visiting Professor at the University of N.S.W. (in the Baker & McKenzie Cyberspace Law & Policy Centre);
- a Visiting Professor at the University of Hong Kong (in the eCommerce Programme);
- a Visiting Fellow at the A.N.U. (in Computer Science).

Affiliations that are relevant to this submission include:

- Fellow of the Australian Computer Society (since 1986), and sometime Chair of its Economic, Legal & Social Implications Committee;
- Board member of Electronic Frontiers Australia;
- Board Chair of AEShareNet Limited, a Ministerial company that provides copyright services in the education sector, particularly Vocational Education and Training (VET). In that capacity, I recently submitted to the Crown Copyright Law Review, encouraging the apparent trend towards the use of open context licences for Crown Copyright materials.

Although it is informed by my various affiliations, this is a personal submission. It relates solely to the intellectual property aspects of the FTA.

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## 2. Summary

The changes that the U.S. Government is seeking to impose on Australia through Chapter 17 of the

FTA would be to the significant advantage of copyright-owners and patent-owners. These are overwhelmingly corporations, and overwhelmingly corporations domiciled in the U.S.A.

The Australian Government is of course fully justified in seeking to break down the high levels of U.S. protectionism, and to gain access to the U.S. market for Australian agricultural and pastoral goods on more reasonable terms.

But, in doing so, the Australian Government must not hold to ransom the country's burgeoning information industries, and the rights of its consumers and citizens.

An addendum to this Submission provides extracts from submissions to the Joint Standing Committee on Treaties that relate to the intellectual property aspects of the FTA. On the basis of these analyses, in combination with my own, I submit that **there would be almost no advantages to the Australian economy or Australian society in implementing the changes imposed by Chapter 17; and there would be very serious disadvantages. The Parliament should therefore not agree to any of them**.

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## 3. The Imposed Changes on Australian Law

Analysis of the impacts has been impeded by the manner in which Chapter 17 is drafted. It is not straightforward to extract from the documents the changes that would be forced on Australian law. Consequently it has been challenging for all parties to work through the implications that those changes would have.

The briefing session with government officers provided little additional information, and no evidence in relation to the impact of the proposed changes to law. What the session did provide, however, was the distinct impression that an agreement between the Prime Minister and the President was regarded as the key act of commitment, and that the Australian Parliament was at best marginally relevant. That in itself is a matter of concern.

This submission focusses on a some key elements of Chapter 17.

(1) In relation to Australian copyright law, the key impositions appear to be as follows:

- **extensions to the powers of copyright-owners** that are concerned about possible breaches of their rights, including extensions to discovery processes available to them (17.11.11); additional impositions on ISPs (17.11.29(a)); extensions of warrants to extract information from ISPs - quite possibly without judicial authority! (17.11.29(b)(xi)); extensions to the powers of injunction and seizure (17.11.9); provisions whose effect would appear to be higher financial liabilities for infringers (17.11.6-8); creation of additional criminal offences (17.11.26); and imposition of the term 'pirated' in a manner inappropriate to Australian law (17.11.19);
- **replacement of the 'Digital Agenda' extensions to copyright law by the** excessive, very widely cast, cumbersome and punitive **U.S. DMCA requirements** in relation to:
  - the use of **'circumvention devices'** (17.11.7);
  - **'rights management information'** (17.11.8).
- **extensions to the life of copyright** (17.4.4);

(2) In relation to Australian patent law, the key implication appears to be as follows:

- **extensions to ensure that process patents are approved** (17.9.1).

The remainder of this submission presents brief analyses of the justification for the changes imposed by Chapter 17, of their economic impact on Australia, and of their impact on Australian society and culture.

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## 4. The Need for I.P. Laws to be Justified

Copyright and patent laws are interventions into the natural order of economic and social activities. They create monopolies, and invite the owners of the monopolies to 'extract rents' from them, i.e. to exploit the law in order to generate higher revenue than they would normally earn, and to impose higher costs on competitors.

Considerable justification is needed for the meddling that **copyright, patent and trademark laws** represent. In the past, moral and ethical justifications have not been considered to be sufficient. The justification has been sought, and needs to be sought, in economics: these laws **exist only to encourage innovation, by enhancing the scope for revenue flows to innovators**.

The proper purpose of copyright and patent laws is emphatically not to create or sustain competitive advantage for one corporation over another, or strategic advantage for one nation over another (even though, depending on the nature of the meddling, that can be their effect). They can be justified solely on the grounds that 'the economy as a whole will work better that way, because there will be more innovation'.

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## 5. The Lack of an Economic Case For the Changes

No convincing evidence has been presented in support of the argument that the digital era has undermined longstanding arrangements and that change is needed to sustain the status quo.

The U.S. and Australian music industries have invented all manner of statistical arguments, which, when investigated, have been found seriously wanting. The same goes for the U.S. proprietary software industry, or at least for Microsoft. (Many other I.T. companies say that they see patent law in particular as being to the serious detriment of innovation in the industry).

It is of the nature of things that large corporations in mature industries fight against technological change when it is driven by more nimble newcomers. For example, entertainment companies fought very strongly against video-recording; but once they finally adapted to the new technology they made massive profits from it.

Music companies' aggressive resistance against peer-to-peer (P2P) reticulation of recorded music is finally giving way to adoption of the technology. The corporations were clearly told 10 years ago that they will be able to achieve large turnover and high margins once they adopt a constructive approach to the new opportunities. The early signs from leading initiatives such as Apple's iTunes are that the pundits were right, and that consumers are prepared to pay remarkably high prices for such services.

The equally vicious opposition by Microsoft to open source software is just as ill-informed and unjustified. A healthy marketplace is emerging, based on value-adding by companies to publicly-available code. This has already resulted in reduced costs to user organisations and consumers, even though the movement is relatively new and has been retarded by the aggressive actions of large corporations. Open source software offers additional and important benefits in the form of far earlier discovery of security and integrity problems, and hence improved quality of software products.

The beneficiaries of the features of U.S. law that the U.S. Government wants to impose on Australian law are large U.S. corporations, in particular the large music and multi-media corporations, and Microsoft. But the case put forward by these corporations has been based on misinformation. The proposed extensions to the monopoly rights are not justified.

It is important to note that **the onus is on those corporations to provide that justification**. That is **because copyright and trademark law are anti-competitive measures that intervene in natural market processes**. The Government's own competitive neutrality policy dictates that special privileges can only be granted where substantial evidence has been presented, and has been

subjected to critical appraisal.

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## 6. The Economic Argument Against the Changes

This section provides a brief summary of the reasons why the changes envisaged in Chapter 17 of the FTA are economically ill-advised, to the point of being seriously harmful to Australia's interests. The argument is expressed more fully in the Addendum, entitled 'The Economics of Innovation in the Information Industries'.

Innovation is dependent on ready availability of information. Especially in the booming digital information industries, innovation rarely occurs in some 'big bang' manner. Rather, it is almost entirely cumulative. Successive small, step-wise refinements are made. Ideas are transported from one context to another, and adapted to new situations.

Moreover, there is seldom a sole-originator of an innovation, because modern industries are symbiotic. Manufacturers are dependent for many of their new product features on:

- their suppliers - through new features in componentry that they incorporate, and their questions and suggestions;
- their customers - through requests, and feedback on previous rounds of new product features;
- their competitors - through observation of one another's products, and comments made by customers about competing products; and
- cross-fertilisation - through common suppliers, common consultants, educational institutions, research laboratories, and employees moving from one company to another.

In short, **innovation is seldom achieved by one organisation making a massive breakthrough, but by many organisations and a great deal of ongoing interaction.** Rather than 'one person standing on the shoulders of giants', most progress is achieved by hordes of busy elves.

Information economics shows that innovators can achieve returns even if they only have quite limited monopoly rights. **Laws to prevent mere imitation without enhancement are important; but that level of protection has been sustained through relatively minor refinements to the law**.

Process patents are an especial concern. Since the Carter Administration, patents have been an explicit weapon of U.S. international competitive strategy. The U.S. Patents & Trademarks Office (USPTO) has lowered the threshhold of innovation required of a patent application to the point that almost anything is approved. The 'contribution' can now be a minor and obvious refinement, it may relate to a mere 'business process' rather than an 'industrial process', and even vague generic claims are accepted. **Progress in eBusiness is being seriously harmed by the USPTO's acceptance of patent applications relating to fundamental ideas** such as 'one-click shopping', 'reverse auctions', 'automated credit-checking' and even the notion of a 'hot-link'.

Innovation is also being seriously constrained by legal actions initiated by large corporations. **Copyright and patent laws provide large copyright-owners and patent-owners with the ability to deflect the attention of innovators from their work, to impose years of delays and very high legal costs, and in some cases even to prevent innovation from taking place.**

There is strong evidence of patent-owners in particular using their legal rights as strategic weapons against competitors. An innovative Australian company recently described patents as "a worthless must-have", because every innovative company needs to have a small collection of them in order to counter-threaten competitors when they seek to delay the implementation of innovative products.

In short, **the longstanding intention of copyright and patent law to stimulate innovation is being frustrated by the manner in which it is being used by its monopolist beneficiaries**.

The open source software movement is highly innovative, and highly dynamic. It is misrepresented

by 'old' software companies as being anti-capitalist; but it in fact merely utilises copyright law in a more constructive manner. It is already making substantial contributions to the economy, and will make far more provided that legislatures keep the climate right for innovation.

**It is seriously against Australia's economic interest for copyright and patent laws to be extended at all, let alone in the manner that the U.S. is seeking to impose on Australia through the terms of FTA 17.**

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## 7. The Social and Cultural Argument Against the Changes

Australian society has had a long and strong dependence on open information flows. This has been protected by an orientation towards open accessibility, and significant qualifications on the rights of copyright-holders.

Drawing inspiration from open source software, an open content movement has been developing during recent years. In the U.S., it is associated with such initiatives as Project Gutenberg, and the 'creative commons'. AEShareNet's open content licensing schemes have been in use for some years now, particularly in the Australian Vocational Education & Training (VET) sector; and work is now well-advanced to re-work the creative commons licence into a form fitted to Australian law.

Open content does not necessarily mean 'free' in the sense of 'gratis'. It supports either conventional sales-based approaches, or gratis provision of licences and the earning of revenue from complementary goods and services. But the open content movement is under dire threat as a result of the lobbying success of predominantly American copyright expansionists.

One concern is **the prevention of large volumes of materials from moving into the public domain for at least a further 20 years**.

Depending on what the confusing provisions of the FTA actually mean, this may be compounded by **the re-copyrighting of some works in which copyright has already expired**.

Another major concern is that **enhancements to the powers of copyright-holders increase the incentive for organisations and individuals to exercise proprietary power over software, over multi-media, and over information more generally**. This works against open source and open content thinking, increases both the purchase costs and the transaction costs to software and information consumers, and hence reduces the accessibility of software and information.

A further concern is that **use of the draconian powers that the changes would grant to copyright-owners would result in information suppression through take-down notices**. These are already having the effect in the U.S.A. of causing ISPs to automatically remove the web-pages and even whole web-sites of individuals and small companies, merely because they receive a threatening letter from a lawyer purporting to be acting on behalf of some major corporation. Several such instances have even occurred in Australia, even though the Digital Agenda amendments were more measured than the U.S.'s DMCA legislation.

It is important to note that **the effect of the proposed changes would be even more serious in Australia than they already are in the U.S.A.** One reason is that Americans enjoy a measure of protection because they have a Bill of Rights entrenched in their Constitution which includes freedom of speech provisions.

A second, critical reason is that U.S. copyright law qualifies the rights of copyright-holders with 'fair use' provisions that are much more substantial than the Australian law's 'fair dealings' clauses. There appears to be nothing in the FTA that requires strengthening of consumer protections, and hence Australians would suffer the worst excesses of the U.S. legislation without even the limited countermeasures that U.S. consumers have available to them.

**The powers that Chapter 17 seeks to impose would assist corporations in their endeavours**

**to oppress their opponents, including not only their economic competitors but also their economic and social critics.** This can be achieved through threats of expensive litigation, and of invocation of the criminal law. In addition, the credibility of that oppressive behaviour would be greatly increased if the U.S.-dictated provisions were implemented in Australian law.

These are not mere theoretical or speculative arguments. The DMCA provisions have been used in the U.S.A. to seriously infringe the freedoms of a number of people. These include Russian Dmitry Skylarov (who was gaoled for months, but the charges were later withdrawn), Norwegian Jon Johansen (who was subjected to many months of prosecution in his homeland, which was eventually rejected by the courts, and who has been advised never to enter the U.S.A.), and American Ed Felten (who was threatened with prosecution if he presented a paper at a conference, another threat that was later withdrawn).

**The obligations embodied in the FTA 17 requirements, if they were implemented, would seriously harm the public interest in openness, and hence damage both social processes and Australian culture.**

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## 8. Conclusions

If the Australian Parliament were to comply with the terms of FTA Chapter 17, it would have to make changes to copyright and patent law that are demonstrably against the interests of innovators, because they fundamentally change the character of those laws from being stimulative of innovation to being protective of the existing activities of large corporations.

Most critical among the many unreasonable U.S. impositions are the following:

- enormously increased powers for copyright-owning corporations, enabling them to disturb the business activities of their competitors, attack normal consumer practices, and suppress information;
- draconian requirements of Internet Services Providers which would be burdensome for those businesses, and intrusive into the activities of their business customers and of the consumer/citizens who have accounts with them;
- extension of the already excessively long life of copyright by a further 20 years;
- issue of patents for mere descriptions of business processes, which is completely at odds with the very notion of patents, and seriously constraining on the conduct of business.

**Copyright and patents are legislated monopolies. They enable owners to prevent other organisations and individuals from being creative.** Their sole justification has been the stimulation of innovation by providing a window of opportunity during which an innovator can exploit their ideas.

**The new philosophy pursued by the U.S.A. in its own economic interests is that owners of copyright should have greatly enhanced powers in order to make profits, and thereby benefit the U.S. economy at the expense of the economies of other countries.**

There are well-established multilateral agreements in place concerning copyright and patent. The Australian Government has agreed to undermine those multilateral agreements by including within a bilateral trade agreement fundamental changes to its laws.

Moreover, there are well-established multilateral processes in place to enable debate about copyright, patents, trademark and design laws. These involve consultations, and specialist negotiators. The Australian Government has agreed to undermine those multilateral processes by overriding them with an *ad hoc*, bilateral trade negotiation process.

The Australian Parliament must reject these changes to copyright and patent law. They are economically, socially and culturally harmful to Australia. They serve the interests of U.S. corporations, not Australians.

## Addenda

The following are provided as Addenda to this submission:

- extracts from key submissions to the Joint Standing Committee on Treaties (JSCT)
- a paper entitled 'The Economics of Innovation in the Information Industries', of 30 April 2004

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## Resources

This submission has drawn on:

- my series of papers in the intellectual property area;
- my submission to the Joint Standing Committee on Treaties (JSCT) of 6 April 2004

A very considerable number of Australian organisations have expressed concerns along the lines expressed in this submission. Organisations that deal with the Government across a range of issues naturally express their concerns somewhat gently; whereas those that are not constrained by *realpolitik* are more forthright. An index of expressions of concern is being maintained on my 'working-paper' page.

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# The Free Trade Agreement Provisions in Chapter 17 relating to Copyright and Patent Law
# Key Submissions to the Joint Committee on Treaties

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30 April 2004



This document is at http://www.anu.edu.au/people/Roger.Clarke/II/FTA17-JSCT-Submns.html

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## Key Submissions to the JSCT

This section provides links to and quotations from Submissions made to the Joint Standing Committee on Treaties (JSCT) in March-April 2004.

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## Libraries

20- State Library of Victoria, including "The Library would urge policy makers to review the AUSTFA proposals in the light of the cultural, legal and historical differences between Australia and the United States to ensure that the level and costs of material currently available in the public domain are not reduced in any way. Developments such as open source software and the creative commons cooperative both in Australia and overseas also indicate that creators and scholars in the education and cultural sectors do not support restrictive copyright laws"

71 - Australian Libraries Copyright Committee / Australian Digital Alliance, including:

- "the importance of maintaining a balanced copyright regime is not properly reflected in the draft text of Chapter 17 of the FTA. Chapter 17 creates obligations to amend the Australian copyright regime in ways that will ultimately reduce access to materials, increase costs for institutions which provide public access to knowledge and curb innovation. This neglect is disturbing and unsatisfactory given that a balanced intellectual property [regime] forms the research and resource base upon which our knowledge and creative industries, as well as many of the primary industries rely" (p. 1);
- "Although Australia and United States share a common law tradition, some divergence has developed in recent years, marked by the emergence of powerful U.S. copyright markets which have been extremely successful at legislative lobbying. Consequently, the U.S. copyright regime sets one of the highest standards of copyright protection in the world" (p. 3); and
- "Australia is a net importer of copyright materials from the U.S. by a substantial margin; an extension of copyright term will, other things being equal, lead to a reallocation of resources and adversely affect our balance of trade. An extension of copyright term has serious consequences for libraries, cultural and educational institutions in relation to raised costs of maintaining access to information and increased costs associated with the already formidable and resource-intensive task of tracing copyright owners and requesting permissions. The groups of people who will be ultimately affected include historians, scholars, teachers, writers, artists and researchers of all kinds" (p. 4)

115 - Council of Australian Librarians (CAUL), including:

- "the carefully developed balance between the interest of copyright owners and users will be destroyed and tipped firmly in favour of the owners. This outcome will be to the disadvantage of writers, artists and filmmakers, as well as the general public, who all depend on using copyright materials to create, to learn and to participate in community life" (p. 2);
- "Moral rights provisions ... will be vulnerable to challenge under the dispute provisions of the FTA. This will again jeopardise the interests of Australian creators in favour of corporate media interests" (p. 2);
- "the impact on higher education in Australia will be to raise the cost of compliance on an annual basis and increase the cost to research as researchers, who traditionally 'stand on the shoulders of giants', will be required to pay for information which would under current Australian law have come into the public domain" (p. 2); and
- "costs will rise due to the necessity to pay copyright owners for an additional 20 years. This cost will be paid by the universities, taking funds from teaching and research to remit them substantially to overseas copyright owners" (p. 2)

142 - Australian Library & Information Association (ALIA), including:

- "ALIA opposes adoption into Australian law of provision 17'.4.4 extension of the copyright term, cited below, and asserts that to do so is contrary to the interests of Australian creators and information users;" (p. 5);
- "Milton Friedman, and 17 other economists (including five Nobel prize winners) ... found that the economic benefit of the extra 20 years to copyright owners was less than one US cent a year for an individual work and was, therefore, unsustainable as an economic argument for extension" (p. 5);
- "the Carnegie-Mellon study ... found that pursuing copyright permissions for out-of-print or commercially unavailable works cost from $US150 to $US200" (p. 5);
- "The extension of copyright terms is an extension of corporate monopoly. It has no place in a free trade agreement, is anti-competitive and burdens information consumers with escalating and unpredictable costs and legal obligations. The drive of American copyright owners, expressed by one lobbyist as extension of the copyright term for "infinity minus a day", is to use the profit potential of cheap digital distribution to establish a new basis for copyright law, one of reward for investment, with diminishing or no space for public or free uses. This is completely against the public interest of any country and it places no obligation on the copyright owner to continue to invest or make the information available commercially" (p. 6);
- "to extend the copyright term. It would add to the cost of our information, education and research, without providing commensurate benefits to Australian creators and publishers" (p. 6);
- "ALIA urges caution in adopting the strict measures of the US Digital Millennium Copyright Act regarding: the circumvention of technological measures set out in article 17.4.7; the removal of rights management information set out in article 17.4.8; and the enforcement provisions set out in 17.11" (p. 8)

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## Universities

63 - University of the Sunshine Coast, including "We are concerned about the impact of the differences between the 'fair use' provisions in the US law and the 'fair dealing' provisions in Australian law; [and] the extension of the term of copyright ... the result will be to destroy the current balance between the interests of copyright owners and users in favour of the owners. This will have disadvantageous effects on the Australian education industry ... We are concerned that the balance for copyright owners and users as expressed in the Australian Copyright Amendment (Digital Agenda) Act 2000 will be lost" (p. 1)

71 - Australian Digital Alliance / Australian Libraries Copyright Committee, including:

- "the importance of maintaining a balanced copyright regime is not properly reflected in the

draft text of Chapter 17 of the FTA. Chapter 17 creates obligations to amend the Australian copyright regime in ways that will ultimately reduce access to materials, increase costs for institutions which provide public access to knowledge and curb innovation. This neglect is disturbing and unsatisfactory given that a balanced intellectual property [regime] forms the research and resource base upon which our knowledge and creative industries, as well as many of the primary industries rely" (p. 1);

- "Although Australia and United States share a common law tradition, some divergence has developed in recent years, marked by the emergence of powerful U.S. copyright markets which have been extremely successful at legislative lobbying. Consequently, the U.S. copyright regime sets one of the highest standards of copyright protection in the world" (p. 3); and
- "Australia is a net importer of copyright materials from the U.S. by a substantial margin; an extension of copyright term will, other things being equal, lead to a reallocation of resources and adversely affect our balance of trade. An extension of copyright term has serious consequences for libraries, cultural and educational institutions in relation to raised costs of maintaining access to information and increased costs associated with the already formidable and resource-intensive task of tracing copyright owners and requesting permissions. The groups of people who will be ultimately affected include historians, scholars, teachers, writers, artists and researchers of all kinds" (p. 4)

103 - Swinburne University, including:

- "the commitment that has been made to 'harmonise' US and Australian copyright law should be extended to the 'fair dealing' regime currently applying in Australia" (p. 2);
- "The proposed extension of the term of copyright is unlikely to provide any economic benefit for Australian scholarly authors, and will significantly reduce material available in the public domain. This will produce a negative net effect for educational copyright users" (p. 3); and
- "addition the university pays approximately $A600,000 per annum to collecting societies to take advantage of the statutory educational licences contained in Parts VA and VB of the Copyright Act. This additional cost is not borne by US educational institutions which can undertake educational copying for no payment under the US 'fair use' provisions" (p. 4)

117 - Macquarie University, including "the Higher Education sector in Australia stands to have certain rights eroded with the implementation of the FTA in its current form. In particular, the value of the 'fair dealing' provisions of the Australian Copyright Act would be adversely affected" (p. 1)

129 - National Tertiary Education Union (NTEU), including "The NTEU's general view ... is that [the FTA] will increase the costs borne by education institutions because of changes to intellectual property" (2, p. 1); and "The immediate impact of AUSETA when it comes into effect will be to increase the costs of tertiary education libraries, information services, and academic units teaching film and television courses. ... the problem caused by Australia's acceptance in AUSFTA of the American copyright standard has not been mitigated to date by the adoption of more liberal provisions, similar to those in the US, for copying for research and educational purposes" (3-4, p. 1)

Australian Vice-Chancellors Committee (AVCC), including "Australian universities believe there is a general potential for increased intellectual property related costs in dealings with the US should these failed to be adequately addressed in the FTA. The recent US push towards extending copyright protection by 20 years (the life of the author/creator plus 70 years, instead of 50 years as is currently the case) is a clear example of a likely increased cost for Australian universities, who are among the country's major importers of copyright material. Should the FTA result, out of a drive towards greater consistency, in a similar extension of copyright protection in Australia then the additional cost burden for universities would be even greater" (p. 2)

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## Public Interest

50 - Electronic Frontiers Australia (EFA), including "This pressure to extend copyright duration clearly comes not from a desire to promote innovation and enhance our nation's public domain, but

rather from a corporate desire to enhance monopoly profits. In practice, given that the extra 20 years would be enjoyed long after the author's passing, it is large corporations that are most likely to benefit from the change"; "Building upon public domain material is a rich source of creativity and anything that serves to further limit the public domain also serves to impede creativity"; "The vast bulk of copyrighted works earn income, if any, for their creators in the years immediately following publication. ... What contribution would Windows 95 make to the public domain in 2065?"; and "Further expansions to the rights and powers of copyright and patent holders are likely to impede innovation because they empower corporations with entrenched interests in existing business models to restrict the development of innovative processes and technologies. Rather than promoting the proper purpose of intellectual property rights, these expansions serve instead to restrict development, raise the costs of business and prop up outdated regimes"

81 - Brendan Scott, including "It is very concerning that the FTA seeks to entrench ways of doing things which are fast becoming outdated. They increase compliance costs and push those costs onto smaller and smaller enterprises. Historically market activity was primarily conducted by large organisations, which permitted the aggregation of search and compliance costs. More recently there has been a higher level of disaggregation and community participation than has been evident in the past. We are in a state of transition at the moment and now is exactly the wrong time to be entrenching particular ways of doing things, especially where they are likely to be inappropriate to new modes of production"

93 - Xamax (this author)

105 - Prof. Ian Lowe, including "This proposed agreement should be rejected. It is clearly not in Australia's interest, even if the only criterion applied is short-term economic impact. When broader social, environmental and cultural issues are considered, it is clearly a very bad deal for this country"

130 - Australian Council of Trade Unions (ACTU), including "The ACTU objects to the acceptance of the US copyright standard of 70 years after the author's death or completion of production in the case of audio-visual works. Australia is a net importer of intellectual property from the US and this decision, by taking 20 years of works out of the public domain, will increase the costs borne by libraries and education institutions" (33, p. 9)

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## Governments

91 - Premier of Victoria, including:

- "we believe that proposed provisions for audiovisual and intellectual property could ... result in negative impacts" (12, p. 2);
- "the AUSFTA introduces significant new constraints on the ability of Australian governments to maintain and adopt policy measures to support audiovisual and cultural objectives (Chapters 10 and 11 and Annex 11-6). We are concerned at the potential impact that this may have both on Australian cultural objectives and on Australia's audiovisual industry' (15, p. 3); and
- "the AUSFTA would require Australia to adopt major elements of US copyright and patent law, including longer copyright terms, new enforcement provisions and new obligations for Internet Service Providers dealing with allegedly infringing material on their systems and networks. While new enforcement provisions would improve the ability of copyright holders to enforce existing rights, it seems probable that Australia, as a net importer of copyright material, would face net costs as a result of extended copyright terms. We need a clearer view of those costs" (15, p. 3)

128 - Department of Premier & Cabinet Western Australia, including "Australia will be required to align its intellectual property laws and practices more closely with those of the United States, including increased obligations for Internet Service Providers and increased enforcement provisions. This is a complex area and Western Australia would welcome further information on the likely impact, including costs, of the obligations under this chapter for Western Australian businesses" (6.2, p. 4)

## Software Industry

85 - Cybersource, including "That strategic advantage [in open source software] held by Australia is in danger under the proposed FTA. ... The proposed FTA would bind the Australian Government to change our laws to restrictive and anti-competitive legislation that benefit only entrenched corporations. By allowing software patents, the proposed FTA will encourage monopolies and discourage competition. Rather than leveling the playing field, the proposed FTA will make it much harder for Australian companies such as ourselves to compete against American corporations such as Microsoft ... We oppose the granting of software patents. We are not alone in this. Many other software producers do as well, including the world's second largest software corporation, Oracle Corporation. The European Union recently voted against software patents. ... We believe that existing copyright law is sufficient to protect software developers" (p.1)

93 - Xamax (this author)

Linux Australia, including " ... Open Source projects rely on copyright. Just as closed-source software is distributed under a license, so too is Open Source software. The difference is simply that Open Source software is licensed under different (more permissive) terms ... The proposed FTA will limit the ability of Australian software developers, companies, and users to benefit from and contribute to the Open Source software industry ... The proposed agreement implies laws which strengthen large software companies at the expense of smaller players. Open Source encourages everyone to become a software producer and distributor: hence the expense is more widely spread than in other forms of software. [Adopting] the American system of software patents will stifle Open Source software initiatives and force Australian users and businesses into using costly and potentially inferior software, without the ability to alter it to suit their needs" (pp. 4, 1)

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## Interactive Media Industry

67 - Media Entertainment & Arts Alliance, including "Australia is a net importer of cultural goods and services - see Appendix 3. The extension of copyright term is unlikely to benefit Australia creators in any meaningful way. It will, however, impact adversely on creators of new works that are adaptations of other works or incorporate archival material" (67, p. 18)

Australian Interactive Media Industry Association (AIMIA), including " ... the free trade agreement ... could severely impact on our ability to develop industrial policies and IP re-use of this material. ... the 20-year extension is thoroughly grounded in the US media channels - not the creators but the distribution channels - wanting to continue to mine those. ... Process patents are anti-competitive. They are anti-innovative ..." (Hansard, 19 April, pp. 5-6)

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## Industry Associations Beholden to US Interests

39 - Australian Information Industries Association (AIIA), whose media release of 9 Feb 04, included "Regarding intellectual property, the agreement recognises Australia's world class IP regime. AIIA awaits further details regarding what is envisaged in terms of greater harmonisation of Australian and US IP laws", but whose submission to JSCT is simply a replay of the U.S. position

56 - Interactive Entertainment Association of Australia, which represents the interests of U.S. and Japanese games corporations in Australia, and whose submission to JSCT reflects its membership

126 - Business Software Association of Australia, which represents the interests of U.S. software companies in Australia, and whose submission to JSCT reflects its membership

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# The Economics of Innovation in the Information Industries

Roger Clarke and Gillian Dempsey *

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This document is at http://www.anu.edu.au/people/Roger.Clarke/EC/EcInnInfInd.html

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## Abstract

Innovation in the information industries is being seriously constrained by the concessions that large corporations have wrung out of governments in the form of extensions to intellectual property laws. These extensions run counter to economic theory, and counter to the interests of economies and societies.

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## Contents



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## Introduction

The digital era arrived very suddenly during the closing decades of the twentieth century. This paper considers the nature of innovation in the 'information industries' in this new context. The term 'information industries' is used here to encompass both information technology providers (in particular of software, but to some extent also of hardware, communications artefacts and services), and content providers (including content in the form of text, images, sound including music, video and multi-media).

It is only natural that institutions whose existence is founded on an old set of assumptions should endeavour to slow down the pace of change.

One institution that is still trying to ignore contemporary realities is economics, where conventional analyses predicated on scarcity continue to be pursued, even though a much more appropriate economics is already available which leads to quite different conclusions.

Another category of conservative institutions is resisting change much more emphatically, and with much more harmful impact. 'Old' information-industry corporations, particularly in the music and software sectors, have recognised that the explosion of the digital era during the last 10-15 years has threatened their longstanding business models and market dominance. They have used their power over the U.S. and other governments to achieve substantially extended copyright and patent laws.

The extended laws are delaying innovation by new and vigorous competitors, and enabling the established corporations to ignore the new context and defer adapting to it. This artificial slowing-down of progress may be to the short-term

benefit of the shareholders in large information-industry corporations, but it is to the serious detriment of the economy because it is retarding technological development and hence economic activity.

This paper examines the nature of innovation in the information industries, and contrasts the analyses of conventional economics and information economics. It argues that copyright and patent expansionism must be halted and reversed, in order to remove the impediments to innovation.

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## Invention and Innovation

Invention is the conception of a 'new idea'. This may be expressed in textual language, or in a formalised language such as mathematics or precise drawings. Alternatively, the idea may be embodied in some kind of artefact or process.

Innovation is a step beyond invention, and is concerned with the deployment of one or more ideas in the real world. This may involve the articulation of an invention, that is to say, its integration into an existing category of artefacts or processes, including adjustments to them to accommodate the new idea. Other ways of describing innovation include the application of knowledge to the manufacture or deployment of a new kind of artefact or process; and the adoption of a new product or process.

Innovators may have to overcome some major hurdles in order to achieve success. In particular:

- some kinds of innovation require **substantial investment**, e.g. new methods of large-scale mineral extraction and chemical production;
- some kinds of innovation require **a long period of time** to come to fruition. This may be because of the nature of the activity (e.g. construction and experimentation with prototypes prior to the design and construction of large-scale plant), or because long and expensive trials are needed in order to avoid harm to people, property or the environment (e.g. new pharmaceuticals); and
- innovation is inherently subject to uncertainties, which give rise to **technological, legal, commercial and project management risks**.

The significance of these impediments varies a great deal, however. It is not appropriate to merely assume that innovations of particular kinds are subject to them. Rather, each case needs to be assessed on its merits.

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## Protectionism

Parliaments have intervened into free-market activities by creating monopolies of various kinds, both generic (e.g. patent and copyright), and specific-purpose (e.g. chip circuit layout protections, and plant breeders' rights).

The basis for these laws needs to be carefully considered. The moral worth of innovators ('they deserve it') is not a sufficient justification for such major interventions into free market processes. Nor is the micro-economic argument that 'protection enables innovative enterprises to earn revenue, make profits, and achieve advantages over their competitors'. Competition policy declares emphatically that it is not the role of governments to 'pick winners', but merely to ensure that an appropriate climate exists. Nor is it appropriate for individual nations to manipulate intellectual property laws in order to gain competitive advantage over other countries.

The argument is properly assessed on macro-economic grounds, i.e. 'the economy as a whole will work better, because there will be more innovation'. Hence, for a protective measure to be justified, its proponents need to demonstrate that:

- progress will stall, because the would-be innovators are not sufficiently confident in the project's profitability that they will be motivated to invest in the development and deployment of the innovation;
- the particular protective measure being sought will overcome that impediment; and
- the negative impacts of the protective measure will be outweighed by the innovation that will be unleashed.

The argument for protections is based on a raft of assumptions that need to be examined in each particular case. In particular, it assumes that innovation requires a high level of investment over an extended period, that innovation involves substantial risk, and that competitors' cost-profiles will be lower (e.g. because they have not been burdened with investment in discovery and experimentation).

Large corporations active in the information industries have sought substantial extensions to the monopolies that they already enjoy through copyright and patent laws. Considerable expansions of privileges have already been granted; and more are being sought.

The monopoly powers for copyright- and patent-owners are justified on the basis that they need a sufficient 'window of opportunity' to financially exploit their innovation; otherwise they will not invest in innovation in the first place, and the economy and society will suffer from insufficient innovation. As was argued in the preceding section, however, the claim that impediments to innovation exist needs to be subjected to careful analysis, and not merely accepted at face value.

This paper's purpose is to examine the extent to which claims for special treatment by the information industries are justifiable. Each particular information industry sector then requires further consideration. One particular sector, open source software, is briefly examined.

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## The Nature of Innovation in the Information Industries

There are instances in which innovations in the information industries require very substantial investment prior to revenue being earned. The vast majority of innovations, however, require much more modest investment than, say, new large-scale chemical plants, and involve much shorter time-frames than, say, pharmaceuticals development.

There are also instances in which major breakthroughs occur in the information industries. Examples include the transistor, and xerography. The huge majority of innovations are, on the other hand, incremental and progressive, involving step-wise refinements.

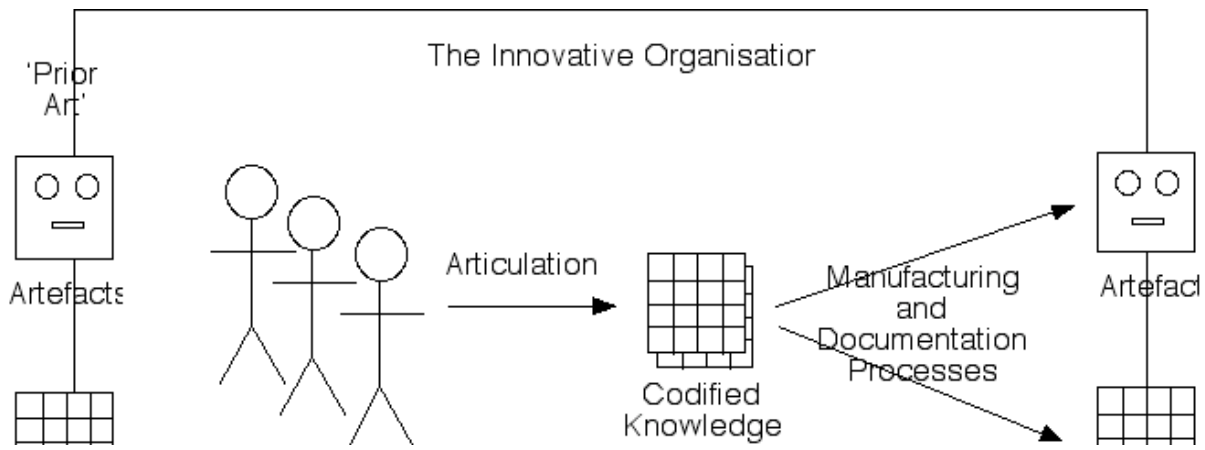
In order to analyse the nature of innovation, a distinction needs to be drawn between two forms of knowledge:

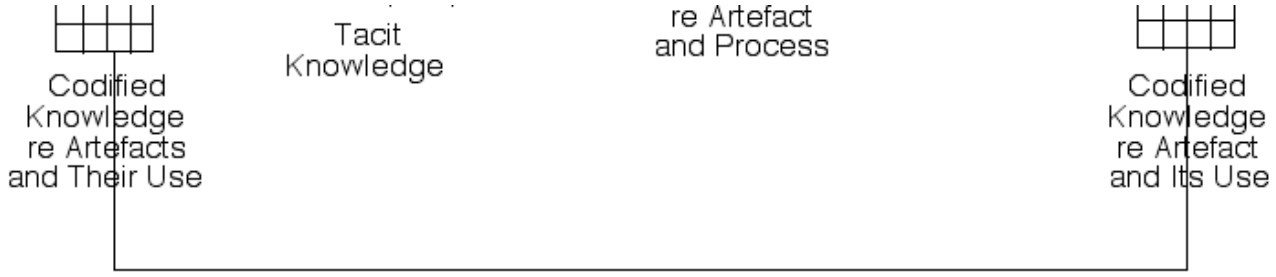
- 'codified knowledge' refers to information that is expressed and recorded in a more or less formal language (sometimes disciplined text, but often formulae, blueprints, and procedural descriptions). It is disembodied from individuals, and is readily communicable through documents;
- 'tacit knowledge', on the other hand, is informal and intangible, and exists only in the mind of a particular person. It is to a considerable extent focussed on the knowledge of how to do something, or to use something, rather than knowledge of facts or relationships. It is not readily communicated to others.

An omelette recipe is codified knowledge. The expertise to interpret the recipe, to apply known techniques and tools to the activity, to recognise omissions and exceptions, to deliver a superb omelette every time, to sense which variants will work and which won't, and to deliver with style, are all examples of tacit knowledge.

The information flows that typically occur within an innovative organisation are depicted in Figure 1. Individuals use tacit knowledge that they already possess, draw on their observations of and experiments with known artefacts and processes (or 'prior art', as it is often described in the context of patents law), and on codified knowledge expressed in available documents. They devise new artefacts and processes, and convert some of their tacit knowledge into codified knowledge and express it in specifications and handbooks. In the process, they generate new tacit knowledge.

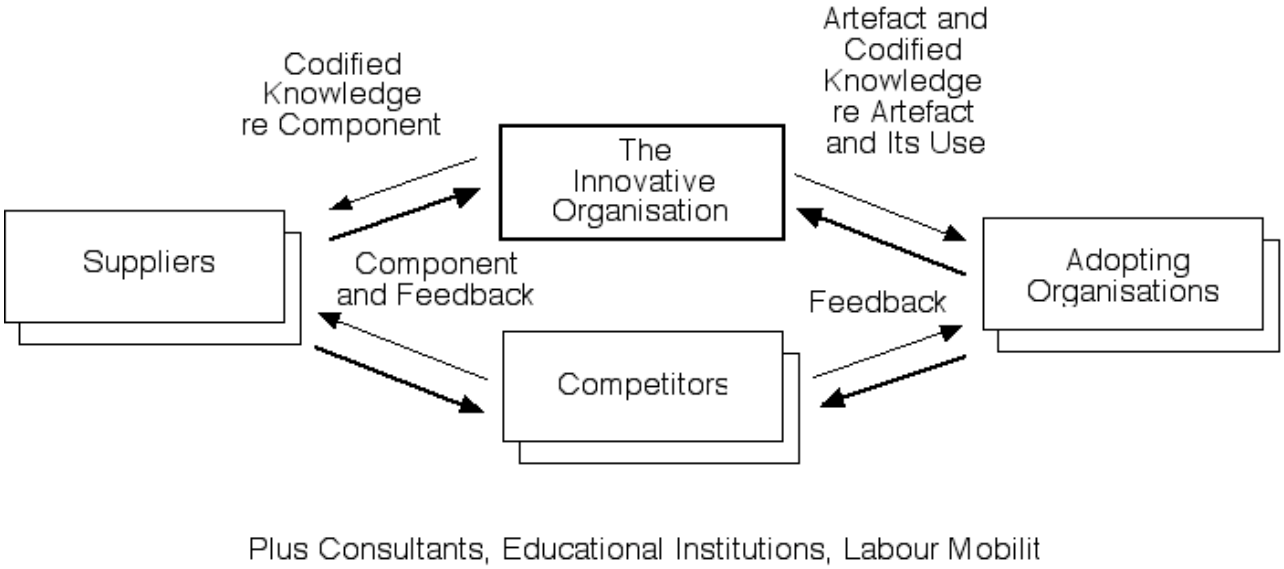
**Figure 1: Information Flows Within the Innovative Organisation**






But innovative organisations in the information industries are anything but independent islands. Figure 2 depicts the information flows that occur within an industry sector. The innovators draw, often heavily, on the ideas of their customers, and feedback from their customers. They also take note of feedforward from their suppliers about new capabilities and opportunities arising in relation to the innovator's raw materials. The customer feedback and supplier feedforward are not based solely on their experiences with the innovator, but also on their experiences with the innovator's competitors. Moreover, there are many ways in which ideas cross-fertilise around a sector, including through consultants, academic researchers, professional bodies, educational institutions, and labour mobility.

**Figure 2: Information Flows Within the Innovative Sector**




Innovation is therefore heavily dependent upon freedom of movement of ideas and information among many individuals and organisations. Monopoly powers such as copyright and patent constrain that freedom. Extensions to such monopoly powers, such as preclusion of reverse-engineering, criminalisation and onerous discovery procedures, add to the barriers against innovation.

One important way to test whether such monopoly powers are justified is to examine the sources of 'first-mover' advantage in the information industries. The following are key factors that determine whether an innovation will earn revenue and establish market-share:

- fit to a need;
- the scale of the investment required to achieve deployment;
- the delay before deployment ('time-to-market');
- the timing of the launch;
- the quality of the project management; and
- the extent to which the innovation is subject to being imitated and competed against.

During the pre-launch period, there are measures available to innovators to protect their interests. These include:

- control over access to the new codified knowledge;
- control over leakage of key tacit knowledge;
- camouflage mechanisms, to avoid the nature of the innovation being fully apparent, and being easily discovered

through use and reverse-engineering; and
- exploitation of intellectual property laws in order to defend key information.

Moreover, marketing strategy text-books identify and advise on many ways in which what might be termed 'business acumen' can be applied in order to extend the innovator's 'window', and to increase the revenue and market-share potentials within that window. These include:

- control over key resources, channels, and customers;
- brand-image establishment, management and exploitation; and
- lock-in mechanisms, to raise customers' switching-costs and hence sustain their loyalty.

Intellectual property laws appear in those lists of factors supportive of innovation. But they also appear in the lists of impediments that innovators must overcome. Other parties, which perceive the innovator as a threat, are able to use their own copyrights and patents as devices whereby the innovator's speed of development can be slowed to a crawl. This may be achieved by precluding the innovator using common components and well-established techniques, by forcing the innovator to discover novel ways to articulate and integrate the primary new invention, and by deflecting the attention of key staff-members within the innovator's team away from the project. This is most commonly achieved by launching complex, multi-faceted and multi-phased legal threats ('nasty-grams'), negotiations, and court actions.

An analysis of innovation processes in the information industries shows that there are many factors at work, and the ease with which competitors can catch up with the first-mover is only one of them. There are many circumstances in which the monopoly protections afforded by copyright and patent laws are not at all important to the success of innovations; and there are also many circumstances in which copyright and patent laws are actively anti-innovation, because they can be, and are, much-used as a means of slowing down innovation by competitors.

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## The Conventional Economic Perspective

The main body of economic theory has been developed in the context of real estate and physical goods and services. Various terms are used to refer to that body of knowledge, such as 'rationalist' and 'neo-classical'. The term 'conventional' is used here.

Conventional economic theory assumes scarcity, in the senses that there are limits to the quantity of the tradable item, and one party's possession and use of a tradable item deprives other parties of the possibility of possessing and using it.

The assumption of scarcity is carried over when conventional economics is applied to the information industries. It is combined with the further assumptions that:

- information is an outcome from innovation processes; and
- information is highly appropriable, because:
  - information about an innovation can be acquired, reproduced, communicated and assimilated quickly and for very low cost; and
  - information is embedded in artefacts, and is extracted easily and cheaply.

Conventional economic analysis results in the following interpretation of innovation:

- investment in innovation will not occur unless investors anticipate returns on their investment;
- imitators contribute little, and are merely `free riders' on the innovator's creativity and investment; and
- there are few natural protections for innovators against imitators.

The conclusions the theory reaches are that:

- innovators cannot achieve returns without help;
- innovators need a `limited monopoly', that will provide them with a window of opportunity, and hence assure return on investment; and
- imitators must be punished for misappropriation.

This provides the justification on which copyright-expansionists and patent-expansionists rest their case.

## The 'Information Economics' Perspective

But information is not scarce. And the digital era has seen all aspects of information production and reticulation greatly changed, with much more rapid and less expensive access to information.

An alternative, more recent, body of economic theory removes the assumptions that tradable items are scarce, and that one party's possession or use of them deprives others of possession and use.

The information economics analysis makes assumptions very different from conventional economics:

- information is both an output from, and an input to, innovation processes;
- information is difficult to appropriate, because:
  - tacit knowledge cannot be extracted, reproduced, communicated or assimilated quickly or for low cost;
  - codified knowledge may not be reproduced, communicated or assimilated quickly or for low cost; and
  - knowledge embodied in artefacts is, in many cases, not codified, and hence may not be readily extracted.

The perspective on innovation is also quite different from conventional economics:

- innovation is mostly cumulative, seldom `big bang';
- innovation is heavily dependent on contributions by users, adopters, suppliers, and competitors;
- imitators, in the absence of `value-add', contribute little, and are `free riders' on the innovator's investment; but
- there are many natural protections for innovators, especially the investment and lead-time involved in:
  - the development of tacit knowledge;
  - its conversion into codified knowledge; and
  - development and marketing of competitive products.

The conclusions are accordingly very different as well:

- innovators can achieve returns without help;
- a `limited monopoly' hinders cumulative innovation, and its scope and length must be no more than that necessary to avoid stunting the initial innovation;
- mere imitators must be punished for misappropriation; but
- encouragement must be given to:
  - investigators of innovations;
  - enhancers of innovations;
  - extenders of innovations; and
  - developers of competing innovations.

The analysis, and these conclusions, are fundamentally at odds with conventional economic analysis, and with the justifications used for copyright and patent extensions to advantage existing, large information-industry corporations.

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## Application of the Analysis to Open Source Software

The information economics perspective on innovation can be applied to any and all information industries, across hardware, software, communications and content.

One especially active, and to date very poorly understood, segment of the new economy is open source software. Open source involves the assertion of copyright in software, but the provision of licences under liberal terms.

The open source approach is distinguished from hitherto conventional 'proprietary' or 'closed' source ideas. Under the old philosophy, owners decline to make source-code available, and apply very restrictive licensing terms to the executable code. Closed-source approaches represent the active exercise of copyright law by the owner in an endeavour to maximise financial returns, and as a direct weapon against both competitors and customers.

The rationale underlying open source software is that the source is exposed to the view of many people's eyes, and hence the discovery and fixing of quality and security defects is facilitated, and cumulative enhancements are made

possible.

Some software providers reject the idea that closed-source is harmful, and that open-source is beneficial. Microsoft goes so far as to oppose open source software on ideological grounds, arguing that it is socialist, precludes profit being made, and therefore undermines investment and innovation.

Microsoft's arguments are self-serving, and clearly not in tune with contemporary realities. Open source is consistent with the information economics perspective on innovation. Moreover, open source does not in any way preclude conventional markets; it merely shifts the nature of the tradable item. Users, rather than being restricted to purchasing a mysterious object that can be executed on a computer, are able to inspect, understand and enhance what they have bought.

Active open source markets have emerged in systems software, utilities, application components, and entire applications. It is very important to innovation, and to an active economy, that the open source software sector be given free rein.

Moreover, a flourishing open source marketplace does not necessarily mean the death of Microsoft, nor of the closed approach more generally. Closed-source providers will compete successfully against open-source providers where their customers are tightly locked-in, and where the closed-source provider has a product that is genuinely better fitted to customers' needs than the products offered by their open-source competitors.

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## Conclusions

Analyses based on conventional economics are of no use in the information industries, because conventional economics assumes scarcity, whereas information, especially digital information, is anything but scarce. The appropriate form of economics to apply is information economics.

Information economics shows that innovators can achieve returns even if they only have quite limited monopoly rights.

The prevention of distribution of mere imitations without enhancement is justified; but that requires at most some minor refinements to longstanding copyright law, and none at all to longstanding patent law and practice.

The substantial extensions to copyright law, and to patent law and practice, that have already been granted in response to the lobbying of large, entrenched corporations are seriously harmful to innovation in the information industries. The further extensions and powers that these corporations are seeking would compound the problem.

It is essential that the current round of demands from powerful information industry corporations be rejected, and that the excessive extensions that they have already been granted be wound back.

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