

7-1-2002

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### Recommended Citation

Singer, Alan E. and Singer, Ming (2002) "Intellectual Property and Moral Imagination," *Journal of Economic and Social Policy*: Vol. 7 : Iss. 1 , Article 1.

Available at: <http://epubs.scu.edu.au/jesp/vol7/iss1/1>

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# Intellectual Property and Moral Imagination

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## Abstract

*Strong intellectual property rights can be damaging, socially and even economically. Such regimes enable various groups within society to more fully pursue their own interests, often at others' expense. Accordingly, the exercise of moral imagination is called for, to alleviate the damage and restore a more democratic balance. In this context, 'moral imagination' entails the creative design of scenarios, business-models, language-tools and conceptual-frameworks, potentially capable of influencing policies and practices. The same ideas also have wider implications for ethical business and the public good.*

## Introduction

It is sometimes suggested that corporate investments in Research and Development (R & D) are motivated by a desire to increase social and economic well-being (New Zealand Intellectual Property Office (NZIPO) 2000). More frequently, it is simply assumed that such investments absolutely require the existence of strong Intellectual Property Rights (IPR) regimes (eg, patents, copyrights, plant variety rights, etc), so that revenues can be captured, profits appropriated and return on capital assured (eg, World Intellectual Property Organisation (WIPO) 1993 *et seq*; Thurow 1997; Teece 1998). Yet, such 'regimes' can be damaging, socially and even economically. Accordingly, many voices of caution and dissent have been raised, worldwide, with regard to the contemporary trend towards stronger IPR. (National Research Council USA (NRC) 2000; Vaver 2000; Handy 1997; Shiva & Holla-Bhar 1996; to mention a few). In the USA, the National Research Council (NRC) has recently written about a 'digital dilemma', meaning the highly ambivalent relationship between strong regimes and the public interest. In the UK, Watt (2000) has found the economic case for copyright law to be similarly questionable, whilst Vaver (2000) has suggested more bluntly that the relevant law has arrived at a point where 'intellectual property is in intellectual crisis'.

The present paper starts by briefly considering how this dilemma or crisis might have arisen. We then indicate a variety of steps that might be taken. These include the creative design of future scenarios, business-models, language-tools and conceptual-frameworks potentially applicable to IPR policy.

## Stakeholders

Several recent accounts of the history and philosophy of intellectual property (Granstrand 1999; Watt 2000; NRC 2000) seriously question whether current IPR legislation can be attributed to law-makers' desire to increase the overall well-being of whole societies, or economies. For example, according to Vaver (2000) we have now arrived at a situation where 'Intellectual property has become more an end in itself, than a means to the end of stimulating desirable innovation'. Put differently, strong IPR regimes currently appear to provide a framework within which various groups within society have been better able to pursue their own interests, often at others' expense. The stakeholders extend beyond legal and accountancy professionals, to include the publishing and broadcasting industries as well as security and defence-related industries. For all these groups, the strengthening of global IPR regimes over the last 20 years or so has been an important strategic goal and opportunity. The strategies they have pursued are briefly outlined in Appendix 1.

## Conflicts and Contradictions

Supporters of strong regimes, together with some other more impartial investigators, have deployed or considered many arguments referring to incentives for innovation, the need for capital accumulation and the associated returns, as well as the alleged consumer benefits derived from investment-intensive products (such as high-first-copy-cost programs and videos). At the same time, managerialist discourse and government policies are now prescribing the maximum possible strategic exploitation of IPR, by producers of digital and digitalisable works, using procedures such as IPR-scanning, or the application of IPR criteria prior to knowledge-generation (R & D). Put differently, the political and commercial world now seems quite willing to accept the notion that there is no point even thinking about a nascent idea, or producing any new knowledge, if someone else might already be able to claim ownership of it (in the senses determined by IPR law), or if the thinker/producer is unlikely to be able to own whatever eventually develops out of it. Whilst these policies and tactics are normally seen as a means of fostering the high-priority goal of fostering local entrepreneurship, they also happen to contrast starkly with liberal educational practices, or with the universal humane ideal that knowledge ought to be a common heritage of all mankind. The latter ideal is expressed, for example, in UN documents and in the free course materials posted on the web by Massachusetts Institute of Technology (MIT). The mere fact that the latter move was considered newsworthy amply indicates the perceived risk to society of extending property laws too far, not to mention the risks of confusing education with business.

Advocates of weaker IPR regimes, such as consumer groups (strictly, *user*-groups) and those concerned with citizens' rights, have two broad categories of argument available. The first essentially re-states the standard welfare critique of market-based systems (Sen 1987 & 1999), the second is specific to IPR and it refers to the direct and indirect costs of litigation, with the paradoxes and contradictions inherent in knowledge-as-property, as well as the variety of possible motives and arrangements for stimulating desirable innovation. To give but a few examples of recent arguments from the latter category:

- a) In the USA, written court opinions do not have copyright; yet 'as many good opinions issue from American courts as from courts (in other jurisdictions) where copyright of opinions does exist. In this case at least, intellectual property is irrelevant as an incentive for creation.' (Vaver 2000, p. 623).
- b) Entrepreneurs and designers routinely stimulate and direct their creative efforts by perusing patent records. Strong IPR regimes can provide a *disincentive* for this, since knowingly duplicating an invention (eg, a software process, or business process) can be a more costly legal violation. This can result in a reduced level of desirable innovation. (NRC 2000)
- c) In weak IPR regimes, producer entities have stronger incentives for being innovative at the particular level of designing their business models, business processes and strategies (see heading 'New Models'), as distinct from products and production processes (Singer & Calton 2001).

There are also a great many alternative formal models and economic theories of how markets for information-intensive goods operate, that happen to support the case for weaker regimes (Deardorff 1992; Helpman 1993; Arthur 1996; Kelley 1999, Watt 2000, to mention a few). These refer to such factors as the effects of positive network externalities (the more copies, the more people like to use and discuss the product) as well as the efficiency and distributive justice concerns associated with increasing-returns and winner-take-most markets.

### **Moral Imagination**

As previously indicated, any IPR policy can be depicted as the resultant, or balance point, of a political stakeholder power struggle; but it can also be described as an outcome of rational deliberations and processes of persuasion. With the latter interpretation (Allison 1970), the many conflicting arguments must be contemplated and weighed against each other. For several reasons, neither of these 'balancing' perspectives currently provides a definite way forward for contemporary policy makers. First, political power now lies overwhelmingly on the side of the above-mentioned unelected stakeholders in strong-regimes, so any resultant policy would not be very democratic. Furthermore, in appraising the various claims about IPR regimes made by the stakeholder groups, one has to be mindful of likely biases, to the extent that 'as human beings we cannot have a view of the world that does not reflect our interests and values' (Putnam 1990, p. 178; Rorty 1993, p. 443, cited in Werhane, 1998). Even if bias is consciously compensated for, the arguments on either side of the IPR debate can still be contemplated 'until Doomsday', as Carl Jung once put it; but specific policies must be laid down in the here and now. Finally, attempts to quantify and mathematically calculate an efficient or socially-optimal IPR policy are made almost hopeless by the dynamic and qualitative nature of changes in the systems being modelled and measured (Watt 2000; Singer 2002).

Accordingly, we have now arrived at the point where tradeoffs must be overcome by a process of creative *synthesis*, or *generative* discourse. To the extent that new scenarios, models, frameworks and language can now be crafted with ethics or the public interest in mind, there is a very great opportunity here for the exercise of moral imagination; for according to Werhane (1998, p. 2) 'it is only through imagination that

one can broaden and change one's moral point of view'. In the present context, that is precisely what is needed.

## **New Scenarios**

Moral imagination starts with a particular dilemma or conflict, but moves on to contemplation of possibilities and ideals (Werhane 1998, p. 14). In the case of the digital dilemma, these plainly include scenarios that can help to 'move ones thinking from the *status quo* to new possibilities' (1998, p. 19). This kind of movement in thinking and mindset has itself been studied for a very long time. Over 700 years ago Ramon Lull devised the idea of identifying all the salient attributes of a system and then exploring their possible re-combinations<sup>1</sup>. In a system that now treats ideas as economic goods, the relative prices of rival goods (eg, hardware) and non-rival goods (eg, software) appears to be most 'salient'<sup>2</sup>. Accordingly, one can create four scenarios by simply envisioning these two types of good being priced at zero vs. greater than zero. The resulting combinations can be described as (i) *status quo*, where both types of good are priced above zero, (ii) common-sense, (iii) looking-glass, and (iv) Utopia, as follows.

### **Status quo**

Under current IPR regimes, rival and non-rival goods can be priced and sold well above zero. This has stimulated a mix of business strategies. For example, one business might focus its marketing efforts on geographic segments within strong-regimes. Another business (eg, movies, high end software) might pursue a hypercompetitive strategy that captures revenue from early adopters, whilst also lobbying through industry associations, for the expansion of stronger regimes.

### **Common sense**

Here, rival goods are priced; but non-rival goods (eg, a digital download) are free. This is the world according to the original *Napster*. It is 'common sense', to the extent that a three-year-old child can quickly grasp the no-deprivation aspect of replicating non-rival goods. (By this age, the concept of object-permanence, are quite well understood, shortly followed, it must be said, by an appreciation of the social benefits of sharing.). In this environment, an entity that co-produces a digital work must use innovative business models (next section), or design even newer ones, if it is to capture revenue and appropriate profits.

### **Looking-glass**

In this scenario, with strong regimes, rival goods are given away free but profits flow from the non-rival goods. Here, the role of money and prices seemingly oppose

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<sup>1</sup> Ramon Lull designed a matrix of 16 attributes of God and Nature, in order to generate new arguments for the purpose of converting non-Christians to Christianity. According to Gardner (1958), this work (*Ars Magna*) was the precursor of the morphological analysis techniques use in 1960s to identify new combinations of attributes for production and marketing purposes.

<sup>2</sup> Rival goods are like a cake that must be divided up, such as hardware and in-person services. *Non-rival* goods, such as software, can be used by one entity without necessarily depriving another. The availability of both types of good (ie, the total size and quality of the 'cake') can depend on the way that it is in fact divided up (Sen 1987).

'common sense', since they are not being used to mediate exchanges, nor to allocate scarce resources. This is the strange world once predicted (20 years ago) by a spokesperson at the *Apple* Computer company. It remains intriguingly feasible. Rival goods become so cheap, due to technologically enabled economies of scale and scope, that it becomes worthwhile to create an installed base that is completely free to the user. Put differently, hardware (and possibly even services) become part of a public good infrastructure, with profits appropriated from the *non-rival* complements (the software, etc).

## Utopia

In Utopia, all goods are free. Robots and programmes tirelessly produce and distribute every conceivable market offering, satisfying human material and informational needs and desires. Radically different institutional structures and productive relationships might then develop. Traditional priorities for exchange and utility give way to concerns about identities, self-expression and 'in person' social relations. Accordingly, those IPRs that serve to uphold identity, reputation and integrity would take on a renewed priority. These include moral rights of authorship, protection against the dilution of collective identity-related symbols (that we currently think of as 'trade' marks) and protection against the disruption of social communications.

Taken together, these outlined scenarios serve to challenge and disrupt the various frames, discourses and narratives that have traditionally been employed in the context of IPR legislation and policy formation. This kind of frame-breaking is but a first step towards innovative re-conceptualisation and re-design, at many levels, including business models, property-language and conceptual frameworks, as indicated in the following sections.

## New Models

Some R & D managers, operating within strong regimes (the *status quo*), have spent time and money setting up IPR scanning procedures. Other (innovative) business strategists have sought to operate independently of IPR considerations, by creatively designing new ways of capturing revenues and appropriating profits from digital products, that depend only upon markets and technologies.

For example, strategies of excludability, involving encryption, rely upon an interval of time in which revenues can be captured before replication becomes possible. An *exclusivity* strategy creates dis-incentives to re-distribution of a retail digital product, by positioning it as a status good. Mass customisation, such as personalised newspapers or websites directly reduce the demand for re-distribution; hypercompetitive strategies use a mixture of such moves, over time. Such strategies all enable some level of revenue capture, even in weak IPR regimes. Each has some particular commercial advantages and limitations (NRC 2000; Singer & Calton 2001). In addition, many other possibilities exist for doing business in weak regimes, such as business-to-business sales involving contracts. For example, when selling or licensing a computer-aided design and manufacture (CAD-CAM) program, or a broadcast encoder, the manufacturer (user) typically has little incentive to re-distribute the software.

### Rival-Complement Business Models

Of all such strategies for profit in weak regimes, those based upon rival-complements are potentially most significant, for they can carry us towards the 'common sense' world (one of the four 'scenarios' mentioned earlier). Here, revenues are captured from rival goods that complement, or are auxiliary to, a primary co-produced digital work. Fortunately, there are several variants of the 'rival-complement' strategy. To generate these (and perhaps even discover new ones) Ramon Lull's ancient idea can be used once again. In the matrix depicted in Figure 1, various types of market offerings or goods (ie, digital download, material good, service, or social/public event, etc) are paired off with each type of complement or auxiliary offering, under a variety of feasible pricing strategies. So, for example, a free download of shareware might be quickly followed by a priced software complement; a free in-person service might be followed by a priced download, or *vice-versa*. In this way, revenue can be captured and profit appropriated without invoking IPR, since the original co-producers have a time-based advantage and a competency based advantage. In order to more fully convey the potential of this approach, the task of filling in the cells of the matrix is left to the reader.

		PRICED AFTER			
		<i>Digital Download</i>	<i>Physical/Material</i>	<i>Service by Person</i>	<i>Social/Public Event</i>
FREE FIRST	<i>Digital Download</i>	Share-ware	?		
	<i>Physical/Material</i>	?			
	<i>Service by Person</i>				<i>Digital Download</i>
	<i>Social/Public Event</i>			<i>Digital Download</i>	?
		PRICED FIRST		<i>Physical Material</i>	?
		FREE AFTER			

**Figure 1: A business-model generator**

This 'business-model generator' can potentially facilitate innovation within an environment of weak IPR regimes; but the innovation is here occurring at the level of business strategy, as distinct from the market offering (product/service), or business process. Accordingly, it is weaker IPR regimes, not stronger ones, that increase the incentives for innovation at this more abstract level. Furthermore, to the extent that weak regimes reflect universal ethics and justice concerns, the idea-generator in



Figure 1 has also become a device for stimulating *moral* imagination, fully within the tradition dating from Ramon Lull.

## New Language

A mere 20 years ago, Rorty (1979) wrote that a primary role of philosophy is to help people and society to 'break free from their outworn vocabulary and attitudes'. If this is accepted, IPR policy now represents a perfect arena for assessing the effectiveness of the discipline. For example, it has become quite routine, in popular communications, to deploy words like 'theft', 'stealing' and 'piracy' when referring to the replication of digital sequences. Yet, to prevent the photocopying of articles, or to constrain the availability of any digital work that entertains, enlightens, or fosters human development, can hardly be described as 'breaking free'. In fact, such deployments of language carry an awful lot of baggage. They might be more fully understood as a powerful battle tactic in a remarkable ideological campaign.

This point has been developed quite recently by Vaver (2000). He first noted, perhaps with understatement, that 'neither the 'intellectual' nor the 'property' part (of IPR) is persuasive as description'. He further observed how 'property language helps tip the balance against other rights, such as freedom of expression'. Charles Handy (1997) was much more blunt, referring to the contemporary language of property as 'an insult to democracy'<sup>3</sup>. More generally, the battle over contrasting business ideologies (eg, stakeholder *vs* shareholder approach, or doves *vs* hawks) has witnessed a great many common English words deployed as political instruments and as tools for advancing narrow interests (cf. Putnam 1990). In tactics quite reminiscent of the cold war, it is not only words like 'intellectual' and 'property' that have become imbued with contrary, novel and dumbed-down meanings, but also some genuinely intellectual terms like 'deconstruct', not to mention more basic vocabulary like 'value' and 'value-based'<sup>4</sup>.

Despite the potential for cynicism, there remains some hope; for Rorty (1985, p. 104) also understood that humans can repeatedly remake themselves, 'by remaking their speech'. Such re-making of business language, including the language of IPR, has now become nothing less than a moral imperative. It is a vital test for contemporary

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<sup>3</sup> Munzer (1990) defined property as 'a relationship between people with respect to things'. He noted the case of canoe ownership in the Yurok Indian tribe, which conferred a duty on the owner of the 'property' to ferry any passing stranger across the river. This is a very different relationship between people to that implied by intellectual property. Put simply, one is human and ethical; the other is not.

<sup>4</sup> Value-Based Management typically refers to techniques for shareholder wealth maximisation. In contrast, a scholarly journal, *The International Journal of Value-Based Management* seeks to 'understand the impact that values and ethics have on business'. To give another example, in the jargon of strategy, 'deconstruction' now refers to the dismantling and reformulation of business structures. In philosophy and literature, however, deconstruction involves the exposure of latent metaphysical and cultural assumptions. As told by Popkin & Stoll (1993, p. 314) Derrida's theory of deconstruction was derived from the work of Heidegger. Accordingly, it advances a *nihilistic* way of treating cultural artifacts (such as business structures), together with a dismissal of accepted values. It is significant, therefore, that the strategy literature on business 'de-struction' contains absolutely no reference whatsoever to the likely human, social and ethical consequences of the radical change that it enthusiastically narrates and endorses.

philosophers, lawyers and policy makers who wish to defend and uphold humane ideals.

For example, an alternative description of copying might refer to imitating, replicating, or learning from others; whereupon it becomes no more apparently criminal or anti-social than a stroll through a forest that one did not plant oneself, or simply reading a book. One might also speak of stewardship of a digital work, or of having a stake in it. More generally, business (and educational) systems might be re-described with reference to productive strategic entities (PSEs) whose repertoires include the *co*-production of digital patterns (Singer 1996a,b & 1999). Such deployments, in turn, might serve to stimulate a complete re-thinking of IPR policies and business practices, with ethics *and* economics in mind. Put differently, if we re-invent language in this distinctive domain we can become more impartial with respect to the narrow stakeholder interests mentioned earlier, whilst more clearly perceiving the public interest.

## **New Frameworks**

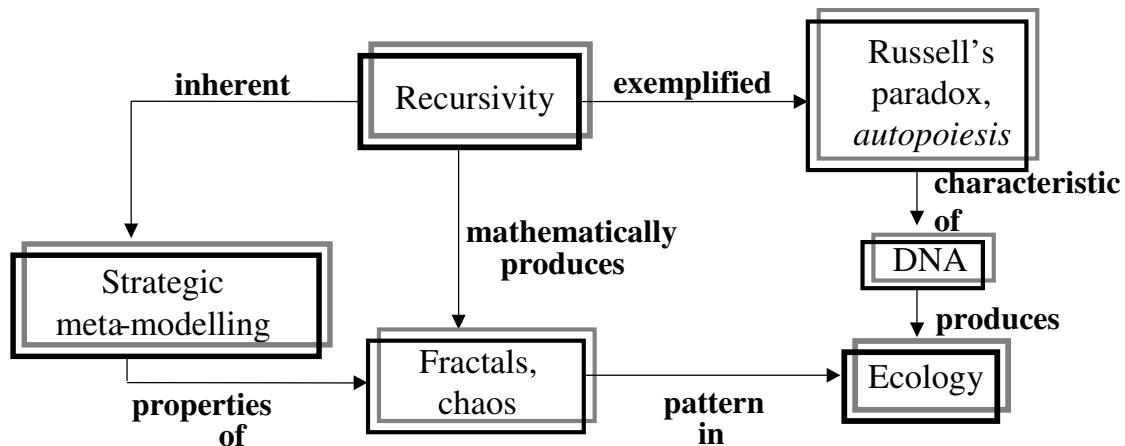
The ubiquitous phrase 'new economy' is a prime example of the kind of 'outworn vocabulary' from which humanity might now be able to break free. The limitations inherent in this phrase arise from the fact that new information technologies have transformed much more than our practices of economic production and exchange. They have also altered modes of communication, forms of social life and even forms of life itself (eg, artificial intelligence, artificial life, genome mapping, genetic engineering, microchip implants, etc). Accordingly, more inclusive ways of thinking, or extended conceptual frameworks, are now needed. Such frameworks might complement or perhaps disrupt the mainstream economic analysis, so that the systemic effects (social, cultural, ecological and ethical) can be more fully understood and contemplated by informed policy makers.

An illustrative example of one such framework is depicted in Figure 2 and briefly described below. The framework is intended to serve as a catalyst for rethinking policy, a frame-breaker, rather than a definitive statement. Put differently it demonstrates how the exercise of moral imagination, in the present context, can lead to quite radical re-conceptualisations of the entire nexus of productive technology, economy, society and ecology, within which IPR policies have had their diverse effects. The components of the framework are but a few of the more salient scientific concepts associated with new technology (eg, recursivity, complexity and chaos theory, living systems, etc); but placed relative to the concept of business strategy, in a quite novel way. An outline description of the framework follows (with further elaboration in Appendix 2).

## **Components**

The central component, or core of the framework is the concept of recursivity, which refers to repeated self-reference and self-replication. Recursive processes are characteristic of computer systems and ecological systems. This particular 'core' reflects the broad intuition that recursive relationships (eg, programs acting on data, originals generating copies, etc) now seem to be at least as important, in modelling

and thinking about the 'new economy', as formal preference relationships can be in modelling the economy of rival goods (eg, in neoclassical models). Put differently, in the new framework and system, replication has become as important as exchange.



**Figure 2:** A new conceptual framework

Next (moving clockwise around Figure 2, from the top), the concept of recursivity is linked to the idea of an ecology (eg, business ecology, knowledge ecology, product ecology, ecological thinking in business, etc) *via* the notions of paradox and self-production (*autopoiesis*). These notions, in turn, are associated with genes in molecular biology and cutting edge computer-sciences (hence the reference to 'DNA'), as well as memes (ie, self-replicating abstract patterns, like tunes and viruses, as originally described by Dawkins, 1976). A second pathway in the framework further links recursivity to ecology, but this time *via* fractals and chaos theory, or dynamic systems theory. Finally (on the left side of the figure), concepts of business strategy are placed relative to the foregoing ideas. Here, a novel approach is employed involving strategy meta-models, or models-of- models (Singer 2002). Each of these 'pathways' or 'inter-relationships' is discussed further in Appendix 2. The remainder of the paper now considers some of the potential policy applications of the framework, whilst also remaining mindful of the scenarios, language and models mentioned earlier.

## New Policies

The NRC report on intellectual property in the digital age (2000, p. 205) specifically recommended that the traditional concept of '*publication*' should be 're-conceptualised'. The above framework (Figure 2) indicates one way of doing exactly that. Here, publication becomes the co-production of patterns that are expected to subsequently replicate, in many minds. The 'patterns' might include narrative texts, multi-media, movies, artificial life<sup>5</sup> and genome maps, to mention but a few. At the same time, IPR policy itself can be re-conceptualised, as a deliberate system-level (top-down) intervention in a grand ecology of knowledge. Then, the only way that

<sup>5</sup> 'Artificial life' refers to computer generated patterns that exhibit some specific life-like properties.

such interventions can plausibly advance the public interest is to have them completely re-designed with ethics or transcendent goals in mind. Put simply, a revised IPR policy has the potential to raise the level of distributive justice in society, foster human development and community identity, whilst also promoting stewardship of the quickly changing mental, cultural and natural environments. Furthermore, this might be achieved without necessarily constraining entrepreneurial activity or economic development.

## Justice

With regard to distributive justice, strong IPR regimes have shifted power from citizens to corporations, from labor to capital and hence from poor to rich. Strong regimes have also provided a pretext and means to increase the capabilities of states and corporations to engage in sophisticated surveillance activities. To the extent that individual freedoms are a constitutive part of economic development (Sen 1999), it follows that strong regimes are profoundly limiting; both politically and economically. Weaker regimes might foster distributive justice (eg, by encouraging affordable generic brand AIDS treatment cocktails, or free office software for less developed countries (LDC) family businesses, etc), whilst also fostering a more democratic political climate.

## Education

From time to time, programs of copyright education (or *mis-education*<sup>6</sup>) have been advocated. For example, public IPR offices (in New Zealand and in the USA) have appealed to citizens and workers to 'protect their ideas'. Yet it seems far more humane, ethical and desirable to project one's ideas; that is, to try to help, educate, enlighten and entertain others. More generally, one might well ask 'why should any culture bother to protect the ideas of the human mind?' (Vaver 2000). To say the least, the notion seems odd to anyone whose professional life has been spent attempting to educate others. More importantly, the public appeal to restrict access to ideas plainly violates the spirit of the moral precept against placing a stick in the path of the blind.

Publicly-funded propaganda for strong IPR regimes is rather unlikely to succeed, given that most people already know that claiming someone else's work as your own is quite wrong (a notion with Marxist *and* Lockean associations); but that exactly replicating a work with the original authors' name and identity intact is often a good thing, as recognised in the fair use legal doctrine (which is unfortunately becoming more restrictive, in some jurisdictions). Such replications not only honour the author and producer, they also create value, so to speak, for new users. In contrast, strong regimes have many dysfunctional and pathetically comical effects, such as property rights claimed over plastic lemons, road signs and iced birthday cakes, not to mention software patents that can be routinely violated as one learns to programme. These have been duly mocked in the press, in websites and in reports, where words like crazy, absurd, ludicrous, and incredulous have been used. This is not a very promising background for any campaign that purports to be seriously educational.

## Moral Rights

Within copyright law, 'moral right' refers to the right to be identified as the author of a work. It is the identity of an individual or collectivity that is ultimately at stake here (ie, expressive rationality), rather than profit or utility maximisation. In a world in which boundaries and identities are continually shifting in ways that many find unsettling, the enforcement of moral rights (as distinct from monopoly rights) is quite likely to gain popular acceptance and respect. Indeed, in a global context, these moral rights of identification comprise a strong candidate for a hyper-norm; that is, a *quasi-*

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<sup>6</sup> Amitai Etzioni, referred to the '*mis-education*' of many students of Economics.

ethical principle that can potentially be accepted in most societies (although US law currently suggests otherwise, for it encourages the sale and re-assignment of these 'rights' to a greater extent than UK and European law).

### **Environmental Policy**

New technology has frequently been upheld as a systemic solution to environmental problems, to the extent that environmental technologies can become a source of competitive advantage for business (Shrivastava 1995; Werhane 1999b; Hawken 1993). The framework set out earlier (Figure 2) also hints at some ways of expanding this ecocentric view of business to the point where it incorporates a more abstract ecology of mind.

Just as the ecocentric view sees nature as something other than a consumable resource, so the expanded view sees that information is not a consumed thing: it replicates, very much like DNA. Thus, for example, the relationship between artificial life in a computer and the natural world around us is very much like the relationship between a piece of digitalized music and its fixation on a physical medium, such as a CD. To some extent, the necessary transitions in thought and language that accompany this insight have already occurred in some areas of business practice, where the above-mentioned phases such as business-ecology, product-ecology, and knowledge-ecology are all in quite common use. However, the deeper idea that this new language ultimately undermines the case for strong IPR, has not been so widely appreciated, nor discussed.

### **Conclusion**

Strong IPR regimes have not only been the target of mockery, they have also created many difficult operational and strategic problems for managers, entrepreneurs and educators. From the perspective of policy makers, these problems now also amount to a rare opportunity. In the constructive and generative discourse that can take place between rival stakeholders and political positions, battle lines are continually being redrawn and new targets sometimes become exposed.

At present, there is a tremendous opportunity for visionary business leaders and politicians to strike at the target of strong IPR regimes. They can point to the new business models for profit in weak regimes, to the common-sense scenario in which replication and education is fully encouraged, to the likely consequences of permitting ownership of life forms (digital slavery, so to speak) and to many other side-effects of strong regimes that can be seen, on reflection, to starkly oppose humane ideals.

It is perhaps worth recalling in this context that in the 1980's, some clever manufacturers in Europe adopted a strategy of lobbying for tougher environmental laws whilst at the same time busily designing greener products. Now, one might consider a similar strategy for cultivating an ecology of knowledge as a public good and common heritage. Specifically, one might lobby for the relaxation of IPR, whilst at the same time adopting the new business models for profit in weak regimes. Unfortunately, hasty global agreements that many see as highly partisan and

undemocratic have made the lobbying component of the strategy a truly mammoth task.

Despite this, academics and journalists can now attempt to educate and inform citizens about the fundamental threat posed by strong regimes to their or their children's 'freedom to talk, write, imitate and develop community cultures' (Vaver 2000), not to mention their freedom to mock, parody and re-invent. At the same time, enlightened IPR legislators and judiciary can attempt to exercise a much greater level of moral imagination in their rulings that reshape society. In that endeavour they might find some support and justification in the various scenarios, models, frameworks and vocabulary that have been suggested in this paper.

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## Appendix 1

### Strategies of Some Stakeholder Groups

#### Legal Groups

To the extent that the legal profession might be viewed as a self-sustaining productive entity (rather than a public-interest-oriented profession) its collective behaviour can be described using the language of business strategy. By lobbying for strong IPR regimes, one might say that some legal groups have attempted to shape the future of cyberspace, in such a way that it becomes a vast competitive space, replete with revenue-producing litigation opportunities. It is noteworthy that the few public-interest arguments that historically favoured copyright (such as encouraging the variety and dissemination of literary and artistic works) have obviously lost force in the presence of the internet; and indeed, such arguments are no longer deployed by this stakeholder group.

#### Accountancy Institutes

The accountancy profession is in a similar strategic situation. In this case, the 'future competitive space' involves business valuation methods, rather than general litigation. The space, or gap, lies between asset valuations based upon historic costs (or realisable-values) and a much higher total market capitalisation. It has duly been filled by numerous expensive methods for valuing intangibles, such as accounting for intellectual capital. The self-sustaining nature of this productive strategy (ie, production of method) is rarely discussed, yet it becomes very apparent when one considers some alternative very feasible accounting practices, that might better serve the public interest. For example, financial reporting can be based upon historic costs, whilst other performance related intangibles such as competencies, tacit knowledge and capacity to innovate can simply be described in plain (but audited and truthful) natural language, leaving the market to determine the resultant fair value of the entity. The recent Enron collapse is but one indicator of the kinds of consequences that follow from having a free market for flashy accounting methods, rather than an institutionalised set of practices shaped around the public interest.

#### Military and Security Interests

Military and security related industries have a distinctive stake in IPR policy. Innovation in the area of information technology increases the military power and intelligence capabilities of states. Accordingly, the military, viewed as a strategic entity, has an interest in the rate of technological innovation. Yet, this alone does not necessarily imply a stake in stronger regimes; because the effect of regime strength on the actual rate of innovation is far from proven. (Consider, for example, the competitive success of the open-source software movement and the public science genome projects.) However, it is the precise nature of the desired innovation that creates the military 'interest' in strong regimes. Military-related industries seek innovations that can be directly applied to command and control, guarding and surveillance activities. Strong IPR regimes can reasonably be expected to increase the demand and incentives for exactly these *types* of innovation, in order to make possible full compliance with the regime. Yet it is far from clear, to say the least, that this type of innovation is in the broader public interest. It is reminiscent of Bentham's *Panopticon*, not to mention, ironically, the excesses of Communist states. Furthermore, to the extent that that personal freedoms become curtailed by strong regimes, such innovations can also constrain overall economic development (Sen 1999).

## Appendix 2

### Components of a conceptual framework

The main components of the conceptual framework set out in Figure 2 are as follows:

#### i) Paradox

Paradoxes involving self-reference date back over 2000 years, to the Epimenides' paradox: 'this sentence is false'. In the early 20<sup>th</sup> century, Russell's paradox similarly referred to a 'set of all sets that are not members of themselves' and it was formally resolved within a mathematical theory of types, in which signs are formally distinguished from their referents. A variant of Russell's paradox that is of special significance in this context, alludes to the notion of self-replication, or self-production, as follows: 'In a certain village, there is a barber who only shaves the men who *do not* shave themselves. Who shaves the barber?' Here, an entity (the barber) is producing a slight variant of itself.

When compared, the two versions of Russell's paradox point to the question of the general relationship between (a) self-*reference* and (b) self-*replication* (or self-production). This relationship was substantially explored by Hofstadter (1979). Formal mechanisms of self-reference (in mathematical logic) were compared with physical mechanisms (in molecular biology) that actually self replicate. Hofstadter (1979, p. 535) thereby discovered 'some remarkable and beautiful parallels'. For example, the process of *interpretation* of formal number-theory statements (ie, their conversion into meaningful form) corresponds, in his framework, to the *transcription* of DNA molecules (ie, their conversion into active form, or RNA), and so on. Thus, one might establish a correspondence between abstract self-reference and concrete self-replication, hence with ecological and living systems (Figure 2, right vertical branch).

#### ii) Fractals

In fractal geometry (originally conceived in the late 19<sup>th</sup> century by Julian, but greatly developed computationally by Mandelbrot, about 25 years ago), the formal procedures involve infinitely repeated self-reference, or mathematical recursion (hence the central link in Figure 2). These procedures produce fractals, that are visible as patterns when presented on the complex plane, on a computer screen, but are also unmistakably '*the patterns found in nature*', or in ecological systems. On zooming into increasing levels of detail, fractals also appear to self-replicate. Thus we have another association between forms of recursivity and ecology, as depicted on the lower right horizontal branch of Figure 2. The works of Gregory Bateson (1972 *et seq*) also explored and elaborated the recursivity ~ ecology relationship, but without reference to the developments in fractal geometry that came a little later.

#### iii) Meta-Models

Finally, the idea of business strategy meta-models can now provide a novel way of placing mainstream concepts of business strategy within the conceptual framework (left hand side of Figure 2). A strategy meta-model is simply a description and depiction of 'strategy models' *per se*. For example, any given strategy model (eg, hyper-competition, stakeholder model, etc) can be thought of, variously, as (i) an object of choice or comparison (ie, amongst a set of models), (ii) a trigger of design activity, (iii) a political tool, and (iv) as a pattern, and so on (Singer 2001b). Yet, such descriptions of models read almost exactly like a list of basic strategy concepts (ie, Choosing options, generating alternatives, managing change, political perspectives, strategy as pattern, and so on).

Accordingly, the question: 'What is a conceptual model of strategy?' can be answered in much the same way (using the same categories of meaning) as the question 'What is strategy?'. In this distinctive sense, contemporary strategic thinking is also self-referential or *recursive*. Furthermore, as with fractal geometry, successive levels of reflective thinking about business strategy 'produce' patterns that recur, with slight changes, at different levels of analysis.