Opening other windows: a political economy of 'openness' in a global information society

CHRISTOPHER MAY*

Abstract. Although analysis in IR and IPE has increasingly started to focus on non-state actors and the information society, the role of the legal architecture of the Internet has been relatively under-analysed in terms of the structural power around communication interfaces. In this article I suggest the work of Lewis Mumford offers a useful lens for thinking about the political economy of technological change in an information society. I set out the role of intellectual property rights as the legal form of the global information society, and suggest a major challenge to this legal form is the idea of 'openness', specifically in the realm of open-source and/or free software. I examine this issue in the realm of (so-called) informational development, where major proprietary players (predominantly Microsoft) have been confronted by an increasingly vibrant open-source alternative. The open-source and free-software movements can be analysed as an emerging example of a globalised 'double movement', seeking to re-embed the tools of informational development in a societal realm of information, establishing in Mumford's terms a 'democratic technics' as a reaction to the programme of information and knowledge commodification spurred by the TRIPs agreement.

> Because your longings are for earthly things,
> where sharing makes each person's portion less,
> envy pumps at the bellow of your sighs.
>
> But if your desire were for loftier things,
> compelled by love of the higher spheres,
> the heart would not suffer with such distress.
>
> Up there, the more there are that say that's ours,
> the more each possesses the greater good,
> and so in that realm the brighter love burns.
>
> > Dante Alighieri, *Purgatory (Canto XV)* from *The Divine Comedy* (1307–1321)
> > (translated by Benedict Flynn)

Introduction

Across the social sciences and the mass media, the interaction of the multi-faceted processes often gathered together under the term 'globalisation', and the

---

technological advances in information and communication technologies (ICTs) perhaps most obviously the continuing spread of the Internet, have fostered a frequent claim that we have entered a new form of society; a global *information* society. While varying in their ambition, ranging from those who argue that the global information society has already been established, to those who see these developments as partial, contingent and ongoing, all celebrants of the information society seek to acknowledge the power and importance of the accelerating move to digital communication, with the reworking of information and knowledge into forms that are themselves easily digitised. Elsewhere I have developed a wide-ranging critique of the stronger and more ambitious version, of this analysis,[1] but here will accept the weaker set of claims (identifying a partial and contingent process) as capturing certain important dynamics in the contemporary global political economy.

My reason for focusing on 'openness' in this special issue on the global politics of communication is that although many of us may use the Wikipedia, may depend on Google for searching the Internet and may prefer Firefox (all of which are based on open-source software), and while we are often happy to distribute working papers over the Internet or seek out open-access journals in which to publish our work, as scholars of International Relations we seem to have reflected relatively little on how these practices might be part of a more widespread political economic shift towards 'openness'. With this term, I seek to capture an increasing dissatisfaction with the global regime of intellectual property rights (patents, copyrights and other forms of property in knowledge), that has prompted the expansion of interest in other ways of organising the production, communication, dissemination and use of information and knowledge; at its most essential, 'openness' is contrasted with the ownership of knowledge and information through intellectual property rights.[2] Intellectual property commodifies knowledge by legal means, while 'openness' appeals to a logic of sharing and cooperative intellectual endeavour.

Certainly for scholars focusing on global politics, there has been an increasing interest in communication, as a site of identity (re)construction, as a realm in which a new politics may be played out, and also as an indicator of wider social changes (not least of all in the workplace). Indeed, a number of multilateral agencies and other institutions that have sought to support development in poorer countries have become increasingly interested in the manner in which the deployment of ICTs might accelerate poverty reduction through what has become termed 'informational development'. However, by often being less concerned with the everyday than some other disciplines, International Relations has failed fully to appreciate that moves to widen communicative 'openness' may have a profound impact on important structures of political economic power. Certainly, openness will not bring about an immediate 'regime change' in the international system, but for many of those living in the information society, the promise of openness is a potential site of emancipation, that makes the rhetoric of informational development more than an elitist dream of *being digital*.[3]

---

[1] See Christopher May, *The Information Society: A Sceptical View* (Cambridge: Polity Press, 2002).

[2] Space precludes a comprehensive treatment of intellectual property here, but see Christopher May, *A Global Political Economy of Intellectual Property Rights: The New Enclosures?* (London: Routledge, 2000).

[3] Here I allude to Nicholas Negroponte's mid-1990s celebration of the information revolution; Nicholas Negroponte, *Being Digital* (London: Coronet/Hodder and Stoughton, 1995).

The manner in which the terminology of the (global) information society frequently has been deployed in policy circles has the (surely intended) effect of shaping, or framing, the debates about what is possible in this 'new' society, and by doing so rendering some solutions, some alternatives, nonsensical or illegitimate. There are many ways we might explore this idea of framing,[4] but here, to emphasise the political economy of the global information society's continuity with previous debates and disputes over technology, I frame my discussion of 'openness' by deploying Lewis Mumford's idea of authoritarian and democratic technics, not least of all to (re)embed the discussion of the information society in a wider concern for the history of technology. This is explicitly a rejection of the argument that contemporary ICTs have wrought an information revolution that has hastened in a new epoch of politics or society. Indeed, as the lines from Dante are intended to emphasise, the human drivers towards 'openness' are hardly novel, and thus the interest in 'openness' might be best understood in a longer historical context than merely the 'information revolution' of the last decades of the twentieth century.

In the next section I set out Mumford's approach to the history of technology, and then, in the following section explore the role intellectual property rights (IPRs) play as the legal form of this (so-called) information society, to suggest they are a form of authoritarian technics, and that they are challenged by a contemporary democratic technics; 'openness'. I then move to discuss (so-called) informational development and how 'openness' is being deployed to make its claims more plausible. Finally returning to Lewis Mumford and noting some parallels with an analyses drawn from the work of Karl Polanyi and more recent work building on Antonio Gramsci's conception of hegemonic power, I conclude that the structures in which informational development may take place are being changed, not by digitisation itself, but rather through the increasingly widespread challenge to intellectual property as authoritarian technics, represented by the power of 'openness' as a democratic technics.

Lewis Mumford and the history of technology

Although it is always difficult to suggest that one writer invented a field of study, certainly Lewis Mumford's book *Technics and Civilisation* (published in 1934) went some way to transforming the study of the history of technology from merely a concern with machines, to the study of the interactions between society and technology over time.[5] Mumford developed a multifaceted concern for the manner in which technology shaped and was shaped by human endeavour, including the manner in which humans came to develop the city as a social technology of survival

---

[4] Angus Cameron and Ronen Palan, *The Imagined Economies of Globalisation* (London: Sage Publications, 2004).

[5] Andrew Jamison, 'The Making of Lewis Mumford's Technics and Civilisation', *EASST Review*, 14:1 (1995), available at: ⟨http://www.easst.net/review/march1995/jamison⟩, accessed 16 October 2006; Merrit Roe Smith, 'Technological Determinism in American Culture', in Merrit Roe Smith and Leo Marx (eds.), *Does Technology Drive History: The Dilemma of Technological Determinism* (Cambridge: MIT Press, 1995), pp. 28–30. I discuss Mumford's work at length in: Christopher May, 'The Information Society as Mega-Machine: The Continuing Relevance of Lewis Mumford', *Information Communication and Society*, 3:2 (2000), pp. 241–65.

and advance. The reason for deploying Mumford's analysis of technological developments here underlines a claim for the continuity of social and political economic relations in the so-called information age. Utilising Mumford's discussion of the history of technology, I explicitly seek to (re)ground our discussions of the information society in a history of socio-technical development that rejects claims for radical novelty; this is *not* to say there is nothing new under the sun, but it is to stress that the 'rupture' of the information revolution does not mean that we have been divided off from our history, and the insights that history brings to our contemporary concerns.

Lewis Mumford firmly resisted an exclusively material analysis of technical advance, where a series of technologies are linked in a 'progressive' history with little regard for their symbolic importance. Mumford argued that technological history was not merely the progress, through improvement and innovation, from one technology to another but rather was an ongoing interaction between the material and the symbolic, between technology and its social meaning, and use.[6] Thus, the history of technology can only be understood by (re)embedding it in the societies, in the political economies in which it unfolds. Moreover, he argued, in the quest to understand the various histories of technology, the focus on artefacts (and the technologies linked to specific artefacts) has consistently shifted historical narratives towards an over-emphasis on material aspects of technological change, and an under-appreciation of the social factors and ideas that encourage particular trajectories of technological advance.

For Mumford our relationship with technology is not as passive receivers of innovation; humans shape the social context which produces technological advance. Our ideas and concerns are major factors in the history of technology, and are not merely *caused* by this history. Stressing human agency in the history of technology, he focused on the danger of allowing ourselves to be passively controlled by technology rather than actively shaping it. To emphasise this social context, Mumford discussed 'technics' rather than technology; the term encapsulating his perception of the importance of our interaction with technology. Historically, in Mumford's analysis, technics have reflected two contradictory dynamics, which he termed authoritarian and democratic.[7] This distinction does not relate to *specific* technologies; rather the use to which technologies are put, alongside their developmental trajectory, serves to locate them broadly in one or other of these dynamics. 'Technics' refers to the combination of technology and its social organisation.

For Mumford, authoritarian technics first emerged during the period of pyramid building in Egypt. Collecting together vast mega-machines of organic components (men, women and children) to do their bidding, utilising new skills including writing, mathematics and bureaucratic control, the 'God Kings' constructed structures that were beyond the capabilities of previous societies. In a sense, the ability to organise large groups of people to specific ends marks the dawn of 'civilisation' in Mumford's eyes, even if such civilisation brought with it the problem of authority and domination alongside the benefits of collective action. However, this first wave of authoritarian technics (at its height with the Roman Empire) could only support the

---

[6] Lewis Mumford, *The Pentagon of Power*, vol. 2: *Myth of the Machine* (London: Secker and Warburg, 1971), pp. 421–9.
[7] Lewis Mumford, 'Authoritarian and Democratic Technics' *Technology and Culture*, 5 (Winter 1964), pp 1–8.

emergence of new technologies in urban centres. Mumford argued that these first authoritarian technics finally proved too dependent on the centre retaining control: once communication failed (beginning at the borders of the empire) and authority was no longer regarded as legitimate, the mega-machine(s) collapsed inwards. A series of democratic technics then asserted themselves during the Middle Ages, when small-scale technologies allowed the development of localised societies, free from the domination of an authoritarian bureaucracy demanding service or tribute. While such freedom was variable and insecure, it was in any case subsequently again constrained by the rise of the nation-state, the mega-machine *par excellence*.

As the rule of the state began to be consolidated in Europe, Mumford suggested that the Enlightenment and the scientific revolution led to a view that technological development and scientific progress would produce an increasingly democratic society. But this hope was dashed by the return of authoritarian technics in the form of the widening technological apparatus of the modern state in industrialised capitalism.

> At the very moment Western nations threw off the ancient regime of absolute government, operating under a once-divine king, they were restoring this same system in a far more effective form in their technology, reintroducing coercions of a military character no less strict in the organisation of a factory than in that of the new drilled uniformed army.[8]

The powerful had constructed a system in which technology supported their claims for omnipotence. Most importantly for Mumford, technological deployment and its effects reflected these social relations: *no* technology is beyond systemic incorporation into authoritarian technics.

Under this modern system of authoritarian technics there is no longer a centralised sovereign location of power, it is the system itself that actualises authority. It sets the limits to action (and possibility) rather than an actual (locatable) ruler, which helps authority defuse much of the continuing resistance flowing from democratic technics. While there are still powerful groups and individuals, their role is largely masked by their ability to define their needs as the technological system's 'natural' needs. The system maintains its domination by providing for the majority an abundance of material goods without historical precedent. But, this is only possible when non-systemic wants are not articulated, and when only deliverable demands are recognised. But, crucially, authoritarian technics are *always* vulnerable to the resurgence of existing (and new) democratic technics.

For Mumford, self discovery, the ability of man to change, always undermines the ability of authoritarian technics to retain control without constant (and contested) reproduction. It is imperative, he argued, that the human scale of life be central to democracy; society must revolve around humans not the system.[9] Thus, while no technology is itself authoritarian nor democratic, it must be *positively* integrated into democratic technics; its democratic potential will not emerge without effort and social action. In contrast to authoritarian technics, democratic technics are localised and 'even when employing machines, remain under the active direction of the craftsman', responding to their needs and wants.[10] They have modest demands (which is to say localised power needs, readily available skills, low organisational requirements) and

---

[8] Ibid., p. 4.
[9] Ibid., p. 8.
[10] Ibid., p. 3.

can be adapted to local conditions. More importantly they remain under the *control* of the local user. Democratic technics retain (or recapture) a high level of autonomy, and thus allow local creativity to be exercised.

It is important to stress that for Mumford, technologies have no natural character, they do not automatically support or destroy democracy, or conversely prop up or undermine authority, but rather they help reproduce social structures and systems through the manner in which they are used (and misused). Put simply, authoritarian technics utilise technology in a manner that enhances top-down rule over society, while democratic technics enable the relative autonomy of local groups and enhances their ability to produce bottom-up innovations and movement in society. Consequently, democratic technics and authoritarian technics do not replace one another, but rather exist side-by-side, in competition, ebbing and flowing but never finally erased. They may often use the same technologies, but in very different ways.

As this implies, for Mumford the history of technology has been a continuing process of interaction and conflict between democratic and authoritarian technics, not a teleological technological progression finally towards one or the other. Technics have not been the result of specific technologies but are the product of the social, political and economic relations in which technologies appear, are developed and deployed, and that technologies themselves support. Therefore while there are many arguments about new technologies and developments, they represent only a further phase of a technological history, the clash of technics which has been continuing since we first learnt to articulate thought through language (for Mumford, man's first technological revolution).

When related to the actual possibilities of any particular technology as deployed in material circumstances, Mumford's dialectical relationship between authoritarian and democratic technics becomes a recognition of possibilities, or conversely their denial. Technologies may be developed with one or other of the dynamics in mind; to centralise authority or conversely to allow individual usage. What Mumford brings to discussions of the social-embeddedness of technology,[11] is an analysis of the *mechanism* through which this multifaceted history develops. Responding to the promise or threat of specific deployments, innovators and users develop, adopt and adapt technologies in new ways. This is to say that authoritarian technics prompt innovation and adaptation by users and social groups towards democratic technics, but likewise those that seek social, political economic power and authority, also respond to democratic technics by seeking to (re)establish authoritarian technics.

Already it should be clear, for those with some rudimentary knowledge of recent developments in the realm of free- and open-source software, that the demands for new open practices, for 'openness' in the digital realm, can be easily located within Mumford's authoritarian/democratic technics dialectic. However, before developing this line of argument to help us understand current developments in the global information society, we need to examine the manner in which the authoritarian settlement (that 'openness' is a reaction to) has been established and consolidated in the last couple of decades.

---

[11] See, for instance the essays/extracts collected together in Donald MacKenzie and Judy Wajcman (eds.), *The Social Shaping of Technology*, 2nd edn. (Buckingham: Open University Press, 1999).

Intellectual property rights as the legal form of the 'information age'

As I have already noted, Lewis Mumford's notion of authoritarian technics is not a description of specific forms of technological advance, but identifies the manner in which technologies and social organisation interact to *produce* an authoritarian governance regime of technological deployment. In the contemporary period, one of the key interactions between ICTs and social organisation is the manner in which increasingly information and/or knowledge based services and products have become enmeshed in the practices and protocols of intellectual property. In all members of the World Trade Organisation the information society's key resources and practices have been embedded in the global regime of intellectual property. This has underpinned a 'new economy' (still) organised on the basis of property rights, which has been intended to constrain the duplication and sharing by users of information based products and services (from software to content; from databases to internet 'tools') without the authorisation of the software's producers or 'owners'. The state as centralised authority plays a crucial role in establishing and enacting this legal form on which (information) capitalists depend in the 'new economy'.

Although, some states have difficulty asserting their formal sovereign independence, others remain important (indeed indispensable) forces in the global information society. Therefore, as Robert Keohane and Joseph Nye suggested 'one reason that the information revolution has not transformed world politics ... is that information does not flow in a vacuum but in a political space that is already occupied'.[12] Within this political space, states' law plays an important role in structuring and shaping social relations through regulation and enforcement: as Phillip Corrigan and Derek Sayer remind us, 'law is a moral topography, a mapping of the social world which *norm*alises its preferred contours – and, equally importantly, suppresses or at best marginalises other ways of seeing and being'.[13] By coding certain outcomes and practices as legal and others not, the state, as law-maker, affects certain outcomes and legitimises coercion against those practices not consistent with such outcomes, although over time this is often subject to negotiation and modification. The state constitutes society through the legal forms it adopts to recognise and legitimise certain activities, undertaken by contracting legal individuals. The legal form that underpinned the accelerated commercialisation of the Internet and the attendant assumption of a globalised information society that followed in its wake, is intellectual property.

Although the 'information age' does not fundamentally change the character of capitalism,[14] it does require the renewal, and redirection of certain aspects of property law; most importantly the reconfiguring of IPRs. The establishment (however partial) of a global information society has prompted the extension of intellectual property into areas previously unavailable for commodification, where such aspects of knowledge and/or information had previously remained in the 'public

---

[12] Robert Keohane and Joseph Nye, 'Power and Interdependence in the Information Age', *Foreign Affairs*, 77:5 (1998), pp. 81–94, at 84.

[13] Phillip Corrigan and Derek Sayer, 'How The Law Rules: Variations on Some Themes in Karl Marx', in B. Fryer, A. Hunt, D. McBarnet and B. Moorhouse (eds.), *Law, State and Society* (London: Croom Helm, 1981), p. 33.

[14] The argument against the 'information age' as a political economic *revolution* is set out in Christopher May, *The Information Society: A Sceptical View* (Cambridge: Polity Press, 2002), ch. 2.

domain' or the minds of individuals.[15] Debates about the possibility that knowledge and/or information are public goods are as old as the law of intellectual property, and indeed their public good character lies at the centre of IPR-related legislation throughout this history.[16] If (global) public goods are both non-rival (co-incident use does not detract from social utility) and non-excludable (once you know something you cannot be [re]excluded from that knowledge), then to support commercial profits derived from knowledge or information, the public good characteristics of knowledge need to be modified to minimise market failure, otherwise it is difficult to extract a price for the provision of knowledge or information, or goods dependent for their value to a large part on knowledge or information.

Historically this has involved a balance between the construction of private rights and the realm of the public, managed through the temporary character of IPRs (IPRs only last a certain number of years) and limitations on their scope (you cannot construct intellectual property from certain forms of knowledge, such as discoveries from nature). However, there have always been arguments about how extensive knowledge as a public good should be (where should the boundary lie between private intellectual property and the public domains of freely available knowledge and information?), and whether there is any need to formally protect knowledge's public good characteristics. As the notion of a global information society has gained ground, and the importance of information for development has become a common-place, increasingly worries have been articulated in various multilateral forums about the constrictions that the increasingly globalised intellectual property regime is putting upon the global public good of knowledge.[17] It is this concern with knowledge as a (global) public good that at least partly lies behind contemporary interest in 'openness'.

However, equally, the commercial sector also recognises the importance of information and knowledge. If capitalism requires new markets to be opened up, then the enlarged legal form of intellectual property is necessary for expansion to continue in the information society (where knowledge and information are increasingly valued), if we accept the claim that increasingly material goods and services are secondary to those that are 'virtual' or digitally defined/composed. We might therefore contend, following Leo Panitch, that 'capitalism has not escaped the state, but rather the state has, as always, been a fundamental constitutive element in the very process of extension of capitalism in our time'.[18] Without law, societies' economic relations would not appear as they do, and these laws in the last analysis are dependent on the authority of the state not only for their formal existence but for their practical ability to rule and shape economic relations. Thus, rather than the information society *qua* capitalist market opportunity being a challenge to the state,

---

[15] Christopher May, 'The Hypocrisy of Forgetfulness: The Contemporary Significance of Early Innovations in Intellectual Property', *Review of International Political Economy*, 14:1 (February 2007), pp. 1–25.

[16] See the long history recounted in Christopher May and Susan Sell, *Intellectual Property Rights: A Critical History* (Boulder, CO: Lynne Rienner, 2005), which stretches back to the first formal patent law in Venice in 1474 and discusses earlier debates about the 'management' of knowledge.

[17] See for instance, Joseph E. Stiglitz, 'Knowledge as a Public Good', in Inge Kaul, Isabelle Grunberg and Marc Stern (eds.), *Global Public Goods: International Co-operation in the 21st Century* (New York: Oxford University Press, 1999).

[18] Leo Panitch, 'Rethinking the Role of the State', in J. H. Mittelman (ed.), *Globalisation: Critical Reflections*, IPE Yearbook: 9 (Boulder, CO: Lynne Rienner, 1996), p. 109.

or a phenomenon outside its control, to a large extent the state (its legislators and law enforcers) are complicit in these developments.

Property in the legal sense of 'property amenable to contract' does not pre-exist the apparatus of government (or the state), waiting to be recognised legally; rather the legal recognition of property constitutes its existence in a form that can be identified by economic actors.[19] Only when there is some form of legal apparatus can property be thought of in a way other than merely possession by those with the physical ability to protect themselves from dispossession. This is especially the case when it comes to the construction of property in knowledge and information. Moreover in the information society, there seems to be no 'technological fix' which can make digitised intellectual property robust with successive systems of encryption and/or protection being 'hacked' or rendered inoperative, as the continuing disputes around digital rights management have demonstrated;[20] the only hope for the protection and enforcement of such (intellectual) property rights is law. In this regard, states find themselves mediating through the law the contending interests of capital and its political opponents (as they have done in the past).

The state is guarantor of intellectual property and faces no real competitors. This is underlined by the private sector's demands, made more concrete through the trade related aspects of the Intellectual Property Rights Agreement (TRIPs) under the auspices of the World Trade Organisation (WTO), to institutionalise sufficient protection for their property through the legal activities of the state. The negotiating position of the US regarding TRIPs was the result of extensive lobbying by a group of twelve multinational corporations (MNCs):[21] while MNCs in general may demand less regulation in some areas, intellectual property is not one of them. Rather, at the centre of TRIPs is a radical widening and institutionalisation of state authority, including search and seizure based merely on the *suspicion* of infringement, and the imprisonment of 'hackers', who try to establish methods of unauthorised access to these properties.

For information-age entrepreneurs, like all profit-driven market actors, the protection of their property is the *sine qua non* of successful activities, without initial clear ownership, products cannot be sold (or leased) to users. This requirement has driven recent developments at the World Intellectual Property Organisation that have sought to ensure that digital rights management technologies are protected in law, under the WIPO Copyright Treaty, enacted by the Digital Millennium Copyright Act in the US and the EU Copyright Directive. By these measures information capitalists hope to retain control of their informational assets, to enhance and continue their profitable exploitation. Thus, the state's role as legislator and enforcer of international (legal) obligations is crucial for the continuance of (informational) economic development and the governance of the global information society, but this is hardly uncontested. Indeed even in the US the intellectual property system is increasingly seen as failing to produce the social effects policymakers and legislators have intended in the past. Thus, as Adam Jaffe and Josh Lerner have

[19] Christopher May, *A Global Political Economy of Intellectual Property Rights: The New Enclosures?* (London: Routledge, 2000), p. 16.
[20] Christopher May, *Digital Rights Management: The Problem of Expanding Ownership Rights* (Oxford: Chandos Publishers, 2007).
[21] Susan Sell, *Private Power, Public Law: The Globalization of Intellectual Property Rights* (Cambridge: Cambridge University Press, 2003), ch. 5.

detailed at some length, not only are there widespread concerns that the intellectual property system no longer fosters innovation, due to the increase of litigation and rent-seeking around patents (especially), the system is now increasingly producing unwarranted social costs.[22] While their solution is a widespread reform of the intellectual property system (focusing on its organisation), for others this merely emphasises the appeal of the alternative: openness.

The challenge of 'openness'

It does not seem implausible to suggest that the control of knowledge, mediated via technology, and the state-imposed institution of intellectual property rights, is in Mumford's terms an authoritarian technic. Thus, we should not be surprised that it has been challenged by a emergent democratic technic, which I shall refer to as 'openness'. This idea of 'openness' initially draws on aspects of contemporary software development: a key issue for advocates of open-source software is the liberty to access the source code of software (its underlying architecture), with the connected freedoms to copy, modify and distribute/share such software with others. Supporters of open source argue that treating software's source code as private property obstructs cooperative working between developers, constraining or even halting improvements (de-bugging) and local initiatives.[23] However, it is important to distinguish between how 'open' is used in software development and how it can be deployed in wider discussions of the dissemination of knowledge, research and intellectual resources.

For software, 'open source' development is a process-related phenomenon; it concerns the manner in which work is organised as much as the products of these efforts.[24] 'Open access' to knowledge and information has no necessary impact on how the creative and innovative activities that produce or develop such intellectual resources are organised (although, of course it *could*). While both open access and open source reject the commodification of knowledge and information, the outcome of rejection is different. In software development 'openness' provokes a wide-ranging reorganisation of working, access concerns predominate away from the software

---

[22] Adam B. Jaffe and Josh Lerner, *Innovation and its Discontents* (Princeton, NJ: Princeton University Press, 2004).

[23] This idea of openness as a road to innovation is not novel nor historically unprecedented, although sadly space precludes developing this train of argument here: see for instance Alessandro Nuvolari 'Open Source Software Developments: Some Historical Perspectives', *First Monday*, 10:10 (October 2005), available at: ⟨http://www.firstmonday.org/issues/issues10_10/nuvolri/index.html⟩, accessed 16 October 2006.

[24] Here I have for rhetorical purposes conflated the considerable philosophical differences between the free software, and the open source, movements, as they both share an antipathy towards IPRs. Although their approaches to the problem draw on similar initial arguments, they have developed in quite different ways (see for instance Mathias Klang, 'Free Software and Open Source: The freedom debate and its Consequences', First Monday, 10:3 (March 2005), available at: ⟨http://www.firstmonday.org/issues/issues10_3/klang/index.html⟩, 16 October 2006. It is clear that some elements of the Free Software movement *do* conceive themselves as offering an anti-capitalist, non-property alternative that should be applicable throughout society. However, this is a minority position that is most often drowned out by the more common reformism implied in the main text of this article.

sector.[25] The key issue outside the realm of software development is more often the social value of free dissemination of knowledge (knowledge as a public good), even if this is driven by the same *political* logic as the campaign for open-source software. Such free access still allows the organisation and commercialisation of information and knowledge related resources, but does not support, nor encourage, the monopoly control of such information or knowledge.

In the discussion of informational development below, it will become clear that the notion of openness encompasses a number of the key elements that Mumford uses to define his notion of democratic technics. At the centre of democratic technics is the human desire for self-discovery; the driving force behind calls for free access and free availability of knowledge is the assumption that the often chaotic public realm should be available to be mined for what is required by those seeking new knowledge about their own predicaments, about the lives they wish to lead and the intellectual tools and practices that they can use to support these desires. Thus, 'openness' is human-centred and democratic; popular (useful) streams of knowledge become widely used and knowledge spreads round the human community (or at least the information society) more and more swiftly. Advocates of openness also suggest that this should allow erroneous and implausible ideas to be unmasked (or at least criticised) more swiftly than in the past.

Openness therefore revolves around a recognition of the widespread network of interested humans in a community of use, adaptation and modification, rather than a top-down controlled and limited model of knowledge and informational deployment. Moreover this can also enhance private returns for activity, where those at the centre of the community's activities are able to understand and benefit from such open innovations more quickly than those less engaged.[26] This leads John Clippinger and David Bollier to note that the

free-market dogma worldview systematically, ideologically, privileges certain attributes of human beings while disregarding other innate propensities. It ignores crucial interdependencies that individuals have with each other, with other cultures and with nature . . . In the long sweep of human history, the values and behaviours that we take as normative in our high-technology, market-driven, media-saturated environment, are in fact, profoundly aberrational.[27]

Like Mumford, Clippinger and Bollier appeal to a different view of human endeavour and its encouragement. And it is this collective view of endeavour, responding to communal needs and collaborative logics, that has underpinned the increasingly global open-source software community. Moreover, unlike the property logic of IPRs which seeks to limit use (and indeed is predicated on such limits to maintain rewards in a market), open methods do not merely free up restrictions, they encourage and thrive on what property systems would regard as 'free riders'.[28]

---

[25] Jeremy Rifkin, *The Age of Access* (New York: Jeremy P. Tarcher/Putnam, 2001), develops a dystopian vision of a society where no-one owns anything but everything is licensed for use. Although this is an exaggeration, questions of the ability to block access to goods when a lack of final sale undermines the possibility of secondary markets are certainly increasingly salient.

[26] Eric von Hippel, *Democratizing Innovation* (Cambridge, MA: MIT Press, 2005), ch. 7.

[27] John Clippinger and David Bollier, 'A Renaissance of the Commons: How New Sciences and Internet are Framing a New Global Identity and Order', in Rishab Aiyer Ghosh (ed.), *CODE: Collaborative Ownership and the Digital Economy* (Cambridge, MA: MIT Press, 2005), p. 271.

[28] Steven Weber, *The Success of Open Source* (Cambridge, MA: Harvard University Press, 2004), p. 154.

In software, free- and open-source models allow for local adaptation and localised innovation related to specific circumstances, openness allows local innovations and improvements with no recourse to centralised control, and with no necessary prior qualitative judgements about access. Moreover, as democratic technics are predicated on the local control of technology, on the local use of resources and particularities to (re)form technical responses to problems and opportunities, again open-source software's depiction as a democratic technic is easy to substantiate. One of the key claims about free- and open-source software in informational development has been the ability to adapt and change software to reflect local circumstances, perhaps most frequently in the language that the software presents itself to the user. Throughout sub-Saharan Africa, locally adapted open source software communicates its functions to new users not in (American) English, but rather in local dialects.

The advantages of openness are not only related to the development and utilisation of software tools; as many of the Internet's early celebrants fervently hoped, the value of 'openness' is also now being (re)asserted as regards the availability of scientific and other information.[29] In the realm of biomedical research, the shift to open-access publishing of results has been perhaps most pronounced, partly because the already high costs of research are compounded by the high costs of journal subscriptions. This reflects access concerns that are central to the *politics* of information in the information society. The crucial argument mobilised by the supporters of open academic publication, such as the Wellcome Trust and the Public Library of Science project, has been that as most published research is funded by taxpayers (in various ways) there seems little justice in having to pay again to have such information disseminated to the public-sector community served by most specialised scientific journals.[30]

Neither should the move to 'openness' be seen as only a top-down facilitation of activity, indeed, as Mumford would have expected, there have been challenges from below to the property model of control. In the realm of innovation (where patents are the key method of commodification), groups of product users have developed open solutions and innovations in various sectors aside from software, ranging from medical equipment to sports or outdoor products.[31] Likewise, the content industries, most obviously the music industry, are finding previous business models, based on the monopolistic control over the products of creative endeavour, being challenged by a generation of artists who increasingly are seeking other ways to financially support their creativity, and are happy to cooperate with a user-led system of widened, open distribution of the fruits of their labours, while seeking reward through concert appearances and the sale of physical artefacts (fan-oriented merchandise) in addition to the digital distribution of their music.

One key example of open approaches to information availability (which is both open in access and open – with some modification – in organisation) is the Wikipedia.[32] The Wikipedia in one sense reinvents the notion of mutualism;

---

[29] Geoff Mulgan, Tom Steinberg, and Omar Salem, *Wide Open: Open Source Methods and Their Future Potential* (London: Demos, 2005).

[30] For a fuller discussion of the 'openness' issues in academic publishing see Christopher May, 'The Academy's New Electronic Order? Open Source Journals and Publishing Political Science', *EPS-European Political Science*, 4:1 (March 2005), pp 14–24.

[31] Eric von Hippel, *Democratizing Innovation* (Cambridge, MA: MIT Press, 2005).

[32] See: ⟨http://en.wikipedia.org/wiki/Main_Page⟩.

supported by a foundation that invites donations from users, it seeks to develop an open resource. However, it is far from anarchic or ungoverned; it is not the happy outcome of spontaneous unorganised activity that some utopians might hope for. Rather, the openness of the Wikipedia has clear limits (we might call this 'bounded openness'): not only do a small team of editors monitor the pages, under the watchful eye of its founder, Jimmy Wales,[33] but an imposition of control is sometimes needed to halt the site's own flame-wars. The George W. Bush page in 2004/2005 became the site of an extensive and protracted serious of successive (political) reorientations, from critical to supportive and back again, and more recently a small number of other entries have been 'vandalised', including Tony Blair, Judaism and Bill Gates. These entries have now been protected (can only be edited by the inner group of administrators) or semi-protected (users can only edit after being registered with Wikipedia for at least four days), but the majority of the pages remain open to edit for all.[34]

Nevertheless, the Wikipedia does suggest that open resources can be built where there is both the political will, and the available resource (here a business fortune invested in a foundation) that can support open access without the need to develop a user-funded model.[35] However, below I will focus on one specific challenge that openness represents within the contemporary global system: the challenge to mainstream notions of informational development, as this is likely to be of direct interest to readers of this Journal and represents an important site of interaction between international politics and technology.

'Openness' and informational development

Although the impact on the global information society is already becoming evident in the developed countries, where the major proprietary players in the software market (predominantly Microsoft) have been confronted by an increasingly vibrant open-source alternative, the most profound impact of openness is likely to be in those societies that are only now being exposed to the 'information revolution'. For the world's majority population, the logic of openness, in software but also more widely as regards the flow of information, knowledge and technologies, will make the promise of informational development more plausible.[36]

[33] Jill Coffin, 'Analysis of Open Source Principles in Diverse Collaborative Communities', *First Monday*, 11:6 (June 2006), available at: ⟨http://firstmonday.org/issues/issue11_6/coffin/index.html⟩, 16 October 2006; for a fuller discussion of the organisation of the Wikipedia, see Yochai Benkler, *The Wealth of Networks: How Social Production Transforms Markets and Freedom* (New Haven, CT: Yale University Press, 2006), pp. 70–4; and see 'Open, but Not as Usual', *The Economist*, 18 March 2006, pp. 73–5, for an argument why new open source business activities will still need strong leaders like Wales and also Linus Torvalds of LINUX; on LINUX, also see Glyn Moody, *Rebel Code: How Linus Torvalds, Linux and the Open Source Movement are Outsmarting Microsoft* (London: Allen Lane/Penguin Press, 2005).

[34] Katie Hafner, 'Growing Wikipedia Revises its ''Anyone can Edit'' Policy', *New York Times*, 17 June 2006 (Technology Section), p. 17; Lorna Martin, 'Wikipedia fights off cyber vandals' *The Observer*, 18 June 2006, p. 3.

[35] Another popular non-software example of openness is the Danish *Vores Oel* open-source beer project, see their website: ⟨http://www.voresoel.dk/⟩ (16 October 2006).

[36] This and the next sub-section draw on Christopher May, 'Escaping TRIPs' Trap: The Political Economy of Free and Open Source Software in Africa', *Political Studies*, 54:1 (March 2006), pp. 123–46.

It may be over twenty-five years since the MacBride report *Many Voices One World* asserted that we cannot 'live by bread alone; the need for communication is evidence of an inner urge toward a life enriched by co-operation with others',[37] but this could as easily be written today in any of the myriad documents proclaiming the value of informational development. Indeed, in the late 1990s, many international agencies discovered the (claimed) power of information technology to effect social change. Thus, to cite just three examples, The World Bank's 1998/99 Development Report *Knowledge for Development* laid great emphasis on the role of the Internet and linked digital technologies,[38] as did the UNCTAD report *Knowledge Societies*,[39] and the G8's Digital Opportunities Task Force report.[40] These reports laid the foundations for an increased emphasis on the potential of ICTs to support accelerated development across the poorer realms of the global system.[41] To a large extent, this link between development and the deployment of ICTs finds its roots in modernisation theory, which remains a strong influence on the policy discourse about the positive and beneficial role of technology in developing countries' developmental strategies.

The *Knowledge for Development* report argues that new ICTs 'hold great potential for broadly disseminating knowledge at low cost, and for reducing knowledge gaps both within countries and between industrial and developing countries'.[42] This has led the Internet to be identified as a crucial contemporary global public good that supports the dissemination of valuable knowledge and information for development.[43] Responding to this developmental focus on ICTs, the G8 governments set up the Digital Opportunities Task Force (DOT Force) at their Okinawa meeting in July 2000 to examine the potential of ICTs and explicitly to address the emergence of the (so-called) 'digital divide'. The group's report stressed that 'the basic right of access to knowledge and information is a prerequisite for modern human development',[44] going on to argue that: 'Creating digital opportunities is not something that happens *after* addressing the ''core'' developmental challenges; it is a key component of addressing those challenges in the 21st century'.[45] However, although few would argue ICTs, and the information flows they facilitate, are worthless, there are considerable differences about the appropriate weight they should be accorded within developmental programmes.

[37] Sean MacBride et al., Many Voices One World. Communication and Society, Today and Tomorrow (London: Kogan Page/UNESCO, 1982), p. 15.

[38] *World Development Report 1998/99: Knowledge for Development* (New York: Oxford University Press, 1999).

[39] Robin Mansell and Uta When, *Knowledge Societies. Information Technology for Sustainable Development* (Oxford: Oxford University Press/UNCTAD, 1998).

[40] *Digital Opportunities for All: Meeting the* Challenge (2001), available from: ⟨http://www.dotforce.org/reports/DOT_Force_reportV5.oh.doc⟩, accessed 27 June 2001 – but now no longer available on line – copy on file with author.

[41] See also the further sources examined in Justine Johnstone 'Knowledge Perspectives on ICT and Development: What a Theory of Knowledge can Add', in S. Krishna and Shirin Madon (eds.), *The Digital Challenge: Information Technology in the Development Context* (Aldershot: Ashgate, 2003).

[42] *World Development Report 1998/99*, p. 57.

[43] G. Adamson, 'Internet Futures: A Public Good or Profit Centre?' *Science as Culture*, 11:2 (2002), pp. 257–75; Lawrence Lessig, *The Future of Ideas: The Fate of the Commons in a Connected World* (New York: Random House, 2001); Deborah L. Spar, 'The Public Face of Cyberspace', in *Global Public Goods: International Co-operation in the 21st Century*, eds. I. Kaul, I. Grunberg and M. A. Stern (New York: United Nations Development Programme/Oxford University Press, 1999).

[44] *Digital Opportunities for All*, p. 5.

[45] Ibid., p. 7.

Following Amartya Sen's definition of 'development as freedom', where freedom is concerned with the processes of decision making in social, economic and political realms,[46] communication and access to information would seem to be central elements of development. Indeed, Sen argues at length that the developmental focus on growth of output needs to be allied to a clear concern for the manner in which political decisions are made, and the scope of provision of information about such decision-making processes. Development is not merely a question of economic advance, but rather also encompasses informed democratic deliberation if it is to become more people-centred. However, only better, not merely more, information can contribute to the empowerment of individuals; here the Internet's claimed ability to undermine state censorship is a key attribute. Existing power structures and other social limitations may restrict people's ability to intervene in political processes, but supporters of the political promise of ICTs stress that the enhanced availability of a range of information over the Internet, at the very least, can contribute to heightened political awareness.[47] Moreover new ICTs may allow local campaigners to establish contacts with international political groupings that can support their work, and provide them with avenues to publicise their concerns more widely. Thus, informationalised development does not necessarily entail the roll-out of the latest powerful computers, it may more importantly be interpreted as a call for the freedom to communicate and be communicated with.

However, the evident and continuing technology gap between developed and developing countries has prompted Robert Wade to argue that the 'informational development' paradigm is just the latest in a long line of development strategies promoted by aid agencies, multilateral agencies and others.[48] It fails to account for the socioeconomic context in many countries, and as such may offer little to communities with serious and immediate welfare problems. Although, the deployment of ICTs may have specific advantages in certain areas, and in certain countries, this is different from the general panacea that is sometimes presented. Computerisation is seldom, if ever, the most pressing developmental priority: health, welfare and education are much more serious problems. As Yochai Benkler puts it: 'what has the *Wikipedia* got to do with the 49 per cent of the population of the Congo that lacks sustainable access to improved water sources'?[49] Indeed, in many cases failure to address these more basic issues undermines the potential of 'informational development' to achieve its purported aims.[50] This is not to say that ICTs can play no role in reducing the gross inequalities within the global system, but 'informational development' cannot replace a concern for all other developmental goals or priorities.

The central question, then, is whether expenditure on ICTs, and the software to run them, represents good value as regards development (understood as combining economic, political and human welfare issues). The provision of access to informational resources might merely enhance the ability of the already adept to take further advantage of these resources, and thus reinforce social inequalities. Certainly this is

[46] Amartya Sen, *Development as Freedom* (Oxford: Oxford University Press, 1999).
[47] May, *The Information Society*, p. 82–5.
[48] Robert Hunter Wade, 'Bridging the Digital Divide: New Route to Development or New Form of Dependency', *Global Governance*, 8 (2002), pp. 443–66.
[49] Benkler, *The Wealth of Networks*, p. 309.
[50] Chris Alden, 'Let Them Eat Cyberspace: Africa, the G8 and the digital divide', *Millennium: Journal of International Studies*, 32:3 (2003), pp. 457–76.

a possibility, and is part of a wider set of problems linked with education and literacy. Thus, to make informational development meaningful, it should not be seen merely as a technological strategy, it must encompass more basic local educational programmes. That said, the provision of access to the resources that are available on the Internet has some social value, as does the ability to store and process locally derived knowledge and information, alongside the facility to communicate easily beyond the immediate locale. However, if this investment is likely to crowd out other more immediately appropriate technological advances (for instance, upgrading farming equipment, or the sinking of new fresh-water wells) then other priorities will (and should) preclude major investments in ICTs. The question of balancing immediate needs with the potential advantages of enhanced informational flows might change, however, if the cost profile of computer deployment was different. Here, the question of IPRs and the alternative of 'openness' in software becomes a crucial consideration for assessing the prospects for informational development.

The advantages of openness for the majority population

The character of the Internet allows owners of operating systems, protected as proprietary software, to enjoy monopoly rents when these technologies become the standard interfaces utilised for connectivity. As the domination by Microsoft of the operating systems that underpin any PC's functions demonstrates, the considerable network effects of a communications infrastructure have allowed a near monopoly to be established in some software products. Across the world this problem has often been side-stepped by the pirated software that is widely available in urban centres, but such illicit savings remain dwarfed by the vast financial transfers established by the current IPR system. As the *Economist* noted in 2001: 'governments of poor countries are being asked to co-operate in a redistribution of global income that will cost them hundreds of millions of dollars'.[51] Or as Benkler more recently noted: IPRs in technologies that form the backbone of informational development are 'a form of tax on technological latecomers'.[52] Although the gains and benefits the majority population might expect from the global information society are in the future, the costs of protecting IPRs are immediate and heavy.

The trade in software can be characterised as rent-taking by companies that have already fully recovered their costs of development and made significant profits in developed country markets. Under previous national legislation high social costs (and the need to ensure wide social use) might have prompted the legitimate recourse to some form of fair-use or fair-dealing provisions, with copyright being by-passed by official sanction in specific circumstances that served a wider social good. However, not only have such strategies been severely constrained under the TRIPs regime (enforced by the threatened utilisation of bilateral economic sanctions), the move to digital rights management further limits this avenue of unauthorised distribution by technological means reinforced by further legal protections. When the source-code of software is protected, reverse-engineering of specific programmes for local

---

[51] 'Markets for Ideas', *The Economist* (14 April 2001), p. 96.
[52] Benkler, *The Wealth of Networks*, p. 467.

modification is inhibited by TRIPs-compliant law. This restrains development, as reverse engineering in the past allowed local innovators to improve off-the-shelf technologies to reflect local conditions, and by doing so familiarise themselves with new technologies. Therefore, not only are the tools that are central to 'informational development' expensive, but previous (now illegal) methods for taking advantage of foreign new technologies are being withdrawn under immense political pressure from the US and EU.

However, unlike the developed countries where there is already a vast base of Windows installed machines (with billions of stored files), in many developing countries (from Africa, to Latin America, from south-east Asia to Eastern Europe) computers are only now starting to be deployed in growing numbers: for many users the choice between open-source and proprietary products remains a choice unencumbered by issues of backwards compatibility. To promote free and open source software alternatives, UNESCO has an extensive website which provides access to information about open source, access to developer tools or actual software, and extensive background materials.[53] This support recognises that openness can play a 'key role to extend and disseminate human knowledge'. Therefore UNESCO has worked with the New Zealand *Digital Library Project* and *Human Info* from Antwerp to develop the Greenstone Digital Library software package that enables the development of Open Source digital libraries of scientific, educational and cultural resources predicated on open access and public domain information. Likewise, UNESCO also supports the Regional Information Society Network for Africa (aiding the migration to low cost/open hardware and software by public sector and civil society organisations), as well as supporting a consortium of developers and users elsewhere.[54]

The adoption of open-source instead of proprietary products offers a number of very practical advantages. There are three key reasons that both the public sector and commercial operators might benefit from their utilisation: the total cost of ownership; the performance and flexibility for localisation; and the development of a knowledge base in programming and other skills. In each of these areas the deployment of open-source products complements other advantages that might stem more generally from the deployment of ICTs among the majority population of the world.

As Rishab Aiyer Ghosh notes, in developed countries the costs of deployment not covered by the licence fee for software are a large proportion of the *total cost of ownership* (TCO).[55] Where labour costs are high (as they are – relatively speaking – in developed countries), the labour intensive components of the TCO, that is, those that stem from actual use, including user support and maintenance (everything apart from the actual licence, communication and hardware costs), far outweigh the costs of the software licence itself. Here, the saving that might be made from shifting from

[53] The portal can be found at: ⟨http://www.unesco.org/webworld/portal_freesoft⟩, 16 October 2006.
[54] This paragraph summarises the overview of UNESCO's FOSS-related activities in B. Barry and J.-C. Dauphin (2003), 'UNESCO Activities in the Field of Free and Open Source Software (FOSS)', paper delivered at *ACT 2003*, The Fifth Annual African Computing and Telecommunication Summit, Abija, Nigeria, 25–29 August, available at: ⟨www.aitecaafrica.com/.../presentations/jcdauphin⟩, accessed 25 March 2004 – but now no longer available on-line – copy on file with author.
[55] Rishab Aiyah Ghosh, 'Licence Fees and GDP per Capita: The Case for Open Source in Developing Countries', *First Monday*, 8:12 (December 2003), available at: ⟨http://firstmonday.org/issues/issues8_12/ghosh/index.html⟩, accessed 16 October 2006.

proprietary to open source software would be small (or given the costs of changing software platforms, perhaps even a positive cost). However when labour costs are lower, this calculation looks somewhat different.

Using 2003 GDP *per capita* figures from the World Bank, Ghosh calculated the effective cost in dollars for software licences. He computed the GDP *per capita* (as a proxy for average incomes), and divided this by twelve to give a *per capita* GDP/month figure for various countries. This was then linked to the 2003 price of licences for Microsoft XP. Thus, in the US Microsoft XP cost around 560 $US for a licence, about one fifth of the figure for *per capita* GDP per month; thus in 2003 the average US citizen needed to work about four days to buy a new copy of XP. However, for instance, as aggregate GDP *per capita* in Africa was much less, Africans needed to work much longer to buy their copy. That year the average African, Ghosh calculates would have needed to work over ten months to buy a copy of XP. Comparing this figure with US GDP *per capita*, and the amount of work required by US purchasers, produced a dollar equivalent for African licences of 30,297 $US.

Therefore, given respective levels of GDP *per capita*, Microsoft's XP was on average over fifty times more expensive in sub-Saharan Africa than it was in America. Although subsequently the actual figures might well be different (prices and products change), the magnitude of the differences is likely to have remained broadly similar. Thus, even with steep discounting (say a two-thirds price reduction from US retail), it would still likely take the average African user three months earnings to purchase XP (or its current equivalent). Certainly, this hides considerable disparities: at the non-discounted price, in 2003 a South African needed to work *only* around two and a half months for her copy of XP, whereas a computer user in Burundi would have needed to work over five years to buy hers.[56] Thus while open-source may incur exactly the same (or even more) labour costs as proprietary software, the absence of licence costs makes a profound difference to the TCO where labour costs, income and purchasing power are considerably lower.

Secondly, because open-source software can be adapted without recourse to negotiations with the owner, and source code is immediately available for adaptation, it is much more flexible than proprietary products. Modifications to respond to specific local demands can be engineered into the software locally, with language-based localisation being one of its key strengths. For instance, the Open Source Software Translation Project in South Africa has produced Xhosa language packages for LINUX, while local language versions of Windows' products remain unavailable.[57] Furthermore, the deployment of open-source program frees programmers from dependency on foreign (often US-based) MNCs for technical support. Support can be localised and is not dependent on training (and authorisation) from foreign providers (or their agents). This also responds to a wider recognition that local communities need to 'own' their developmental strategies if they are to benefit from these economic changes.

Thirdly, and linked to the above, openness also encourages the development of computer programming, maintenance and developmental skills within the local user

---

[56] Ghosh also provides figures for the EU (as well as accession and applicant countries); the Caribbean; Latin America; the Middle East; Asia; and Oceania, alongside individual figures for 178 countries.

[57] N. Nir Kshetri, 'Economics of Linux Adoption in Developing Countries', *IEEE Software* (January/February, 2004), pp. 74–81, at 77.

community. While all software requires specific skills (which of course can be gained through accredited training), open-source allows local engineers to develop skills related to their local needs. This can also allow a form of ongoing apprenticeship in programming communities, with more experienced programmers helping newer practitioners through email discussion lists and bulletin boards. As V. Vinay (of the Indian Institute of Science) puts it: open source encourages 'learning to understand large complex programmes, without inducing any guilt of being a ''pirate''. Dexterity in creation and not in usage is crucial . . . [or] else we will merely be followers.'[58] This can be seen as a form of technological transfer from organisations that have funded the initial acquisition of programming skills by individuals, who then spread those skills through the user community of any particular open-source project.

Thus, the assertion that developing countries can derive benefits from the information revolution is made more plausible be embracing openness, as the costs are reduced and local and in Mumford's terms, 'democratic' technological development can be encouraged. However, many NGOs and other agencies involved with supporting development seem unaware of, or do not give priority to, these potentialities in computing and software, seeing their prime interests lying elsewhere. As in many ways the underlying political perspectives of many NGOs fit quite snugly with the social developmental aims at the centre of demands for openness,[59] there is at least significant potential for collaboration.

Local groups in Africa, Latin America and elsewhere have campaigned to limit the use of Microsoft products in community computer centres and other informational development projects, but Microsoft also recognises the need to establish usage patterns so that the network effects can 'lock-in' new users. As open-source has in the past been initially less user-friendly than proprietary software, often using typed 'command line' instructions, encouraging use of open-source outside the specialist community of ICT-adepts has not always easy, however, more recent open-source projects have recognised these shortcomings and have developed more user-friendly interfaces. The type of software new users are initially introduced to is a crucial issue for the open-source 'community' as much as it is for Microsoft. Backwards compatibility certainly matters to many non-technical users, but the software chosen by central governments also will shape the choices at local computer centres and agencies. Hence, lobbying efforts have focused on the provision of entry-level computing for local computer centres alongside public procurement contracts, in a battle to shape people's first contacts with the information society.[60]

Microsoft, and other major suppliers, also have been very active in supporting their products' position within informational development programmes. In January 2004, at the annual World Economic Forum, Microsoft announced a one billion dollar grant (cash and software) to fund a programme with the UN Development Programme (UNDP) to bring computers to local communities in developing

[58] Quoted in Frederick Noronha, 'Linux: Open Source Software for South Asia', *Economic and Political Weekly* (20–26 November 1999), available at: ⟨http://www.epw.org.in/ showArticles.php?root=1999&leaf=11&filename=671&filetype=htm⟩, accessed 11 March 2004.

[59] Daniel Yee, 'Development, Ethical Trading and Free Software' (1999), available at: ⟨http://danny.oz.au/freedom/ip/aidfs.html⟩, 16 October 2006.

[60] Jyh-An Lee, 'Government Policy toward Open Source Software: The Puzzles of Neutrality and Competition', *Knowledge Technology and Policy*, 18:4 (Open Source Software, 2006), pp. 113–41.

countries.[61] Microsoft has also signed agreements with the New Partnership for African Development and the United Nations High Commissioner for Refugees, but even with steep discounting and free give-aways, the longer-term cost issue retains it political salience.

Thus, while for many in the developed countries the move to open forms of technology is often almost invisible, in the majority population, the shift in the structures of ownership and access will potentially have a major impact on their ability to access the claimed fruits of the new information society. As Steven Weber suggests: 'the provision of a freely available technological infrastructure [in computer software] represents by itself a form of wealth transfer to poor countries, but it is wealth transfer that developing countries can manoeuvre to their particular advantage'.[62] Likewise, Bill Thompson recently stressed that:

Free software provides a bridge between the affluence of the West and the poverty of most of the world's population, and amounts to a massive flow of intellectual capital into the developing world. And as they reshape it to meet their needs it will stop being just another US import and become a resource that can be used in brand new ways.[63]

Although to stress the importance of openness, I have focused on software, there are many other areas, such as access to medical research, technological advances and other information assets where the adoption of an open logic, and the rejection of the previous proprietary structure of distribution will likely be of as great, if not greater, importance to the majority population.[64]

The more general transforming potential of openness, which is already starting to be perceived, is to widen this logic beyond the realm of software, and start to stimulate structural shifts in the wider realm of international relations. Given that much discussion of the information society is based on the claims for digitisation, it should be no surprise that the notion of 'openness' has initially (re)emerged in the field of software development. However, as it encapsulates much older values (of co-operation, of sharing), equally it is no surprise that it is proving such an influential alternative in the wider realm of global society more generally.

Conclusion: Opening other windows

The expansion of the global intellectual property regime can certainly be regarded as an element of what Stephen Gill has termed the 'new constitutionalism', a wider political economic dynamic 'to make transnational liberalism, and if possible liberal democratic capitalism, the sole model for future development'.[65] While the global governance of IPRs is only one, albeit important, part of this 'project', its contours are clearly discernible within this regime of regulation; as Gill argues, under this new constitutionalism 'public policy is increasingly premised on the goal of increasing

---

[61] 'Microsoft in $1bn Training Project', *Financial Times*, 24 January 2004, p. 7.
[62] Weber, *The Success of Open Source*, p. 251.
[63] Bill Thompson, 'India Lays Down ''Open'' Challenge', *BBC News – online*, 12 May 2006, available at: ⟨http://news.bbc.co.uk/go/pr/fr/-/1/hi/technology/4764565.stm⟩, 16 May 2006.
[64] See, for instance, the range of areas that already 'openness' reaches into, set out in Benkler, *The Wealth of Networks*.
[65] Stephen Gill, *Power and Resistance in the New World Order* (Basingstoke: Palgrave Macmillan 2003), p. 132.

security of property (owners) and minimising the uncertainty of investors',[66] the explicit goal of the enforcement of IPRs on behalf of their corporate owners. However, as neo-Gramscians, such as Gill, would also expect, the attempted construction of an hegemonic settlement such as this is unlikely to be uncontested.

This suggests that one way to think about the growing interest in 'openness' is to see this as some form of Gramscian counter-hegemonic movement, not merely criticising the practices of power, but developing and deploying a radical alternative. As Mark Rupert reads Gramsci, he

> understood popular common sense not to be monolithic or univocal, nor was hegemony an unproblematically dominant ideology which simply shut out all alternative visions or political projects. Rather common sense was understood to be a syncretic historical residue, fragmentary and contradictory, open to multiple interpretations and potentially supportive of very different kinds of social visions and political projects.[67]

Here we can immediately see a resonance with the recovery of the common sense of cooperation and sharing that lies at the heart of openness. If openness is appealing to older ideas about the collective social use of knowledge, then the idea that this confronts common understandings of the utility of ownership models can easily be conceived of as the recovery of 'a syncretic historical residue' that until recently has been subsumed beneath a dominating hegemony of ownership logic of knowledge.

We might also say that the rise of openness as a political project reflects what Karl Polanyi once called the 'double movement'.[68] The continued attempts to wrest knowledge from its social context and place it into markets through commodification, has engendered a response that seeks to return these commodified intellectual assets to the social commons, or make their extraction from this social context more difficult if not impossible. This is to say: knowledge and information are developed and created in a social context that is not necessarily dependent on the workings of capitalism; intellectual endeavour reflects much older social mores such as creativity and the desire to discover and communicate. The expansion of IPRs (with more strident attempts to commodify knowledge and information in the global system through TRIPs complaint laws) has been an attempt to further remove knowledge and information from this context and embed them in the system of property rights that underpins capitalism. This move to socially dis-embed information has provoked the second part of a 'double movement' that seeks to return knowledge and information to the more socialised milieu, the opposite of a complete marketisation or commodification.

One of the key elements of the 'great transformation' from feudal society to a society patterned by capitalist social relations, Polanyi suggested, was that the idea that labour, land and money themselves might be commodities required a 'commodity fiction' be developed to allow their legitimated commodification.[69] The rendering of things not originally produced for sale as commodities required a story to be told about these resources which was not necessarily linked to their real existence or production but rather narrated a propensity to be organised through markets. A

---

[66] Ibid., p. 196.
[67] Mark Rupert, *Ideologies of Globalisation: Contending Visions of a New World Order* (London: Routledge, 2000), p. 11.
[68] Karl Polanyi, *The Great Transformation: The Political and Economic Origins of Our Time* (Boston, MA: Beacon Press, 1944 [1957]).
[69] Polanyi, *The Great Transformation*, pp. 72ff.

similar story has been told about products of the mind for some time, and has recently become more stridently proclaimed by those who benefit from such commodification. These stories have been intended to support the extraction of knowledge-related activities from casual social interactions, and shift them into a realm of market exchange, and to reduce the public good aspects of knowledge and information.[70]

However, if commodifying knowledge required one set of stories to be mobilised, interestingly, the growing support for openness has also involved story-telling – just a different story of how we innovate and interact.[71] As Michael Strangelove has put it:

The fundamental significance of the Internet lies in its production of an alternative symbolic economy and its expansion of the number of contenders that may participate in the normative debate. The cumulative effect of unconstrained expression and non-commercial cultural production may well be the production of a permanent alternative symbolic economy that is the essential foundation for the creation of new social orders.[72]

Even if we regard this claim as exaggerated, nevertheless there is a kernel of truth here. The new open networks facilitated by the Internet *do* represent a challenge to the property system of the information society, and challenge its legal form (the globalised regime of IPRs and their protection/enforcement).

Maintaining the previous nationally defined knowledge commodification system (of intellectual property), fails to heed the increasingly cross-border and complex communicative liaisons that lie behind much of the innovation in an information society.[73] As many developing countries' governments have realised, trying to control information and knowledge flows through a complex of (albeit well-coordinated) national systems has costs for those countries that are at this time needing to import innovations and important information or knowledge (from technical to contextual) to support their development strategies. Here, the value of openness is most clear; by embedding themselves in open networks of knowledge and information exchange not only do national communities stand to benefit, they can contribute and amend these informational resources in light of the particular needs.

One recent assessment of the impact on global development opportunities of digitisation and the 'information revolution' concluded that:

On the one hand, technological innovation in the global North, bolstered by an effectively enforced system of intellectual property rights may continue to channel profits to elites and firms in the core countries of the global economy. On the other hand, the emergence of a shared global digital infrastructure, with open source software as the paradigmatic case, may afford the South significant new opportunities for innovation and even for income convergence with the global North. Between these stark alternatives lie a range of possibilities.[74]

---

[70] May, *A Global Political Economy of Intellectual Property Rights*, ch. 2.
[71] For the importance of narrative (re)formation in the global political economy, see Angus Cameron and Ronen Palan, *The Imagined Economies of Globalisation* (London: Sage Publications, 2004), esp. ch. 2.
[72] Michael Strangelove, *The Empire of Mind: Digital Piracy and the Anti-Capitalist Movement* (Toronto: University of Toronto Press, 2005), p. 219.
[73] Hippel, *Democratizing Innovation*, p. 171/172.
[74] Taylor Boas, Thad Dunning and Jennifer Bussell, 'Will the Digital Revolution Revolutionise Development? Drawing Together the Debate', *Studies in Comparative International Development*, 40:2 (Summer 2005), pp. 95–110, at 108.

However, as the last phrase recognises, these 'stark alternatives' are really two sides of a continuing interaction between the realm of property and the realm of openness, between authoritarian and democratic technics, neither of which will dispose of the other but whose relative reach and scope will fluctuate in response to the political dynamics of the contemporary global political economy, as they have done in previous periods of history.

Therefore, and finally, it as well to stress that although openness is a valuable corrective to the over-arching rhetoric of ownership rights, it is not a replacement for the IPR system. Rather it is a reminder that within a globalised capitalist (information) society, there needs to be a carefully-wrought balance between the rights of private owners and the benefits and access that can be legitimately demanded by a wider public.[75] Moreover, despite its promise as regards the majority population, unlike other attempts to re-order the structures of the global political economy, the shift to openness requires no legal changes; it does not require the abandonment of intellectual property laws, indeed it uses them to reinforce openness through open licences that deploy copyright to maintain open access.[76] It is a self-help solution to problems of global inequality and uneven development. A shift to openness requires (and reflects) localised action rather than top-down macro-level political change (unlike the calls some decades ago for a new international economic order).

In this sense, we must place the call for openness in a longer historical context than the recent (so-called) information revolution; I have suggested we can do this by deploying Mumford's discussion of the history of technology, and while there are clear resonances with analyses inspired by Polanyi and Gramsci, as I have noted, the focus on the history of technology offers significant other benefits. It is useful firstly because it allows the call for openness to be seen as a legitimate and constructive part of an on-going political-legal history of negotiation *within* the realm of IPRs and technology, and not merely some temporary aberration. Secondly, and flowing from this point, it enables us to recognise the self-interested arguments of the 'owners' as also part of an historical crusade towards the widest rights possible. This recent emphasis on private rights unfortunately sometimes forgets that IPRs have always been a legislative mechanism to utilise private rewards (to support creativity and innovation) for a greater public good.[77]

As has always been the case, the key is balance, and openness is the contemporary manifestation of an historical tendency for resistance to emerge when the privileges and rights claimed by owners inflict onerous and unacceptable costs (and duties) on non-owners. As Steven Weber has argued, open-source approaches are not anti-property, but rather invert its logic; he puts this succinctly: 'Property in open source is configured fundamentally around the right to distribute, not the right to exclude'.[78] Certainly these two systems can coexist, but the ability to choose freely between them is becoming in itself a transformational dynamic in the global system. Carving out a space for openness to balance the space that already is defined by the logic of

---

[75] That said, I would note that this is more than asking which niche in information markets is best served by which incentive model (that is, open benefits or private rewards) as set out, for instance in Hal R. Varian, Joseph Farrell and Carl Shapiro, *The Economics of Information Technology: An Introduction* (Cambridge: Cambridge University Press, 2004), pp. 59–63.

[76] Benkler, *The Wealth of Networks*, p. 320.

[77] Christopher May and Susan Sell, *Intellectual Property Rights: A Critical History* (Boulder, CO: Lynne Rienner, 2005).

[78] Weber, *The Success of Open Source*, p. 228.

commodification, reflects Mumford's notion of how the dialectical history of technics has developed in the past. This allows us to clearly see how 'openness' can develop *within* the global society as currently constituted, rather than requiring through its logic systemic change. However, International Relations as a discipline seems to have been uninterested in these shifts in the contemporary political economy; such lack of concern cannot continue for a discipline that seeks to understand the contemporary international (or global) society.