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Policy and Regulation in the Internet Era

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> "The major modern communication systems are now so evidently key institutions in advanced capitalist societies that they require the same kind of attention, at least initially, that is given to the institutions of industrial production and distribution" (Williams, 1977: 136).

Introduction

Raymond Williams' comment applies as much to the media and communication systems of his time as it does to today's Internet era. As Silverstone (2007: 26) wrote, "mediated connection and interconnection define the dominant infrastructure for the conduct of social, political and economic life across the globe". The Internet is no more a neutral configuration of technologies than was the earlier media and communication system. If there are forces that are shaping the Internet's development in ways that are not equitable then there is a case for countering them. This paper offers an assessment of current trends in policy and regulation that bear on the Internet. The aim is to discern whether visions of a post-neoliberal period are visible in policy and regulatory practice in this area. Though some argue that developments in Internet governance are beginning to wrest control of the Internet away from state or private sector influence,[i] I suggest that this is a very one-sided view. In this paper, I argue that the forces influencing Internet developments are not benign because an unregulated Internet is unlikely to maximise the benefits of the Internet for all.

This paper focuses on corporate interests in the Internet's evolution and on the state's role in regulating various components of the infrastructure and services that employ the Internet. The following section considers the paradoxical alliance between the neoliberal agenda and the advocates of the open unregulated Internet. The impact of the neoliberal agenda on the

telecommunication, broadcast and Internet segments of the media and communication industry is then considered briefly, providing a basis for a more in-depth consideration of the incentives encouraging corporate actors to engage in monopolisation strategies as a means of maximising their profits. In the penultimate section, the likelihood of a shift to policy based on a post-neoliberal paradigm is explored through an examination of some recent developments in network infrastructure, broadcast content and radio frequency spectrum policy.

Neoliberalism and the Information Society

Neoliberalism is a philosophy that privileges markets as the primary means of organising society. It also serves as a metaphor for the workings of capitalism. Stiglitz (2008: 1) calls it a "grab-bag of ideas based on the fundamentalist notion that markets are self-correcting, allocate resources efficiently, and serve the public interest well". In the mid-2000s following the recession he commented that, not only was neoliberalism never supported by economic theory, it is a political doctrine, the influence of which may wane in the wake of new evidence that markets are not self-correcting. His hope is for a guiding theory that might provide a foundation for policy practice more consistent with the goals of equity and enhanced social welfare. What is the evidence for this in the context of Internet-related policy and regulation?

Proponents of neoliberalism favour the supply side of the economy and the welfare of the individual over that of the community. Neoliberalism encourages market decentralisation, consistent with the idea that in 'free markets' no transacting party has power over any other. For neoliberals, the welfare maximising pathway is towards economic growth through non-interference by governments in markets. Bentham's liberalism of the early 18th century preceded neoliberalism. He called for the liberal state to guarantee free markets so that "… everyone's natural desire to maximize his own utility, or at least not to starve, would bring everyone into productive relations which would maximise the aggregate utility of the society" (MacPherson, 1964: 488). J S Mill later "rejected the maximization of indifferent utilities as the criterion of social good, and put in

its place the maximum *development* and use of human capacities – moral, intellectual, aesthetic, as well as material productive capacities" (MacPherson, 1964: 489). Mill found no means through which these values could provide a mechanism for economic growth and so the way was open for marginal utility theory to offer a model in which rewards would flow to people in relation to the marginal productivity of their contributions. This neoclassical theory requires that an income distribution be assumed, regardless of whether it is unequal. The result is a theory that assists in the maintenance of "a massive inequality between owners and workers" (MacPherson, 1964: 494), which limits the development and fulfilment of citizen's capacities. MacPherson (1964), a keen observer of markets and democracy, saw that firms would seek to build empires and that unless the premises of utility maximisation are relinquished, economic growth is unlikely to become subservient to a democratic vision.

The Internet is at the core of the information economy. This is an economy driven, in part, by a small number of 'empire-building' firms such as Google and Facebook. There are some, like Stiglitz, who hope that the financial problems of the late 2000s will bring an end to neoliberalism as a political ideology and as a guide to policy action (Rustin, 2010). Others are more circumspect about claims of the arrival of a post-liberalism world (Harvey, 2009). Within the core of the information society – networks and their applications - there is increasing reliance on market exchange and a reluctance to entertain policy or regulatory measures that might intervene in the 'free' workings of the Internet. Private interest in profit serves as a benchmark against which many – certainly not all - developments in Internet activities are judged in relation to their contribution to society.

Neoliberal arguments paradoxically are closely allied with arguments suggesting that any regulation of the Internet will have dire consequences for its evolution as an open network available to all who choose to use it. Zittrain (2008: 35), for instance, acknowledges that there are policy problems (privacy, security, and capacity), but says that intervention, "if undertaken, might ruin the very environment it is trying to save". He suggests that we should rely on "technically

skilled people of goodwill … to serve as true alternatives to a centralized, industrialized information economy …" (Zittrain, 2008: 246).

There clearly is an epistemic community of scientists and engineers who develop internetworking protocols in line with norms of cooperation and sharing and whose norms are consistent with democratic values and equitable development.[ii] However, the privatisation of components of the Internet has meant that there are corporate interests at stake as well. As a scholar with the foresight to imagine the information society before it became the focal point of policy promoting the diffusion of digital technologies and their applications, Bell's words are salutary. He argued that if "the 'unmasking' of ideology, thus is to reveal the 'objective' interest behind an idea, and to see what function it serves" (Bell, 1962: 397), in our case, forbearance of Internet regulation, then the implication is that we need to see if this is consistent with a society in which power is diffused; one where no single individual or group "should be able to dictate" (Bell, 1962: 86) what is produced for whom. The Internet market dynamics bear few of the hallmarks of this vision of an absence of market power, no matter how much the technical experts may wish for it. Castells (2009: 4) maintains that "the communication process decisively mediates the way in which power relationships are constructed and challenged in every domain of social practice, including political practice". There is, therefore, a case for scrutiny of what values are prevailing and for a consideration of the case for policy action. [iii]

The next section traces the imminence of the neoliberal policy agenda through segments of the Internet market.

Neoliberalism in Media and Communications

Media and communication networks historically were regulated because of their importance for society. David observes that those arguing for, or against, Internet regulation often draw conclusions based on their experience with the relatively mature technology of the telecommunication or broadcast industries. They take the relatively immature Internet technology as a given. This he argues

is “palpably misleading when applied to the situation of the Internet” (P. A. David, 2001: 184). We need instead to examine the actual dynamics of Internet market developments and the incentives facing those involved in those developments. As Freeman (1992: 226) wrote, “as in the case of political power, the dangers of abuse of concentrations of economic power are ever-present and the need for appropriate checks and balances is also a continuing one”.

Telecommunications and Neoliberal Policy

Policy informed by the neoliberal agenda in the case of telecommunications arguably was helpful in dislodging the power of monopolies – public and private. The monopoly telecommunication operators had resisted innovations in data communication technologies and services in the 1970s and 1980s. An emphasis on market forces arguably dislodged their inertia in providing citizens with digital services even if those services did not meet the goals of universality. Technological innovations in the telecommunication sector have enabled digital convergence or the blurring of industrial boundaries between formerly distinct sectors of telecommunication ‘carriage’ and ‘content’. To dislodge the monopolists and to encourage innovation in new service provision, neoliberal policies favoured competition. This policy was promoted by the American delegation to the OECD in the mid-1980s, and later in the International Telecommunication Union and in other international organisations (Ergas, 1985; Mansell, 1989). Market liberalisation and ‘light touch’ regulation soon took hold throughout the industry. Commitments to neoliberalism were reflected in the ‘Global Information Infrastructure’ initiatives of the 1990s which promoted the expansion of the Internet (Gore, 1995; Kahin & Wilson III, 1997). The mantra for both the wealthy and poor countries was – privatise, liberalise and compete (Cowhey, 1990; Petrazzini, 1995) and the neoliberal “western liberalisation model” was exported worldwide (Mansell, 1992). We are now witnessing a resurgence of the forces of monopolisation in some segments of the industry and this has implications for the Internet’s development and for policy.

Broadcasting and Neoliberal Policy

The incursions of neoliberalism into broadcasting were somewhat slower. Defining the public interest in broadcasting was always difficult (Blumler, 1992; Melody, 1990). As in telecommunications, there is a way in which a market-led policy emphasis paradoxically was welcomed because it contributed to an unlocking of private sector resources which arguably reduced barriers to a 'one way' flow of content from the wealthy to poor countries (Fox, 1997; Nordenstreng & Schiller, 1979). The neoliberal agenda was used to call for the opening up of national content markets in the name of pluralism and cultural diversity, stimulating production within many countries, albeit in the commercial marketplace. For opponents of market-led policies, however in the wealthy countries, the pluralism and diversity of media content was understood to be under threat as a result of growing emphasis on commercial production in the broadcast sector. Many called for policy intervention to protect public service broadcasters (PSB) (Freedman, 2008; Garnham, 1995; Humphreys, 1996). In Europe, the European Commission's Television Without Frontiers Directive (EC, 1989) went some way to protect the space for PSB but not far enough according to its critics (Burgelman & Pauwels, 1991). In the United States, the broadcast arena was virtually deregulated by the end of the decade of the 1990s (McChesney, 2004), with residual cross-ownership rules being abolished in 2007, unleashing the private sector to pursue its interests in profits even though firms still must serve the 'public interest, convenience and necessity'.

The Internet and Neoliberal Policy

Champions of an open Internet, not subject to regulation, have so far managed to convince policy makers that direct intervention under conventional telecommunication or broadcasting regulatory mechanisms is not needed and would suppress innovative activity (Benkler, 2000; Johnson & Post, 1996a). Internet Service Providers (ISPs)[iv] have been classed in the United States as information service providers, not subject to traditional common carriage regulations by the Federal Communications Commission (FCC, 2005). In Europe,

the Internet is unregulated, at least insofar as it is not understood to involve carriage, and it is not classed as a mass media audio-visual service (EC, 2009b, 2010b). It is important to recall, however, that the Internet 'sits' on top of a network infrastructure. There are corporate interests in the sale of routers, network cables, microware towers, terminals and handsets and in software applications and content. Many of these market segments are subject to regulation in the public interest which has been affected by the neoliberal agenda. Thus, claims that the Internet has escaped this agenda entirely are misguided.[v]

Scarcity and Corporate Interest in the Internet

Political economy analyses of the content and telecommunication industries have revealed the market power of the large companies (Bettig & Hall, 2003; McChesney, 2004; Mosco, 2004), but there has been remarkably little research on the specific interests of companies that are dominating many aspects of the Internet. Even if the distributed nature of the Internet enables many actors to participate in content production and communicative processes, empirical analysis indicates that emerging strategies are similar to the monopolising tendencies of the earlier media and communication industries.

Exploiting Labour Power

Cohen (2008: 7), for example, analyses corporate interests in social interactions among users of Facebook. She considers whether audiences are 'empowered' when they serve as co-producers of content,[vi] suggesting that users are providing their unpaid labour in support of the profit seeking motives of large companies. The Web 2.0 applications are being put into the service of capital, "reorganizing production and distribution in order to increase wealth and extend control over the labour force" (Cohen, 2008: 7). The unpaid work of users enables the owners of Facebook and other similar sites to build revenue models around users who 'self-service' themselves.[vii]

Her analysis of the political economy of the new online social media recalls Smythe's earlier discussion of the 'audience commodity' in the age of the mass media (Smythe, 1977).[viii] If today's 'audience' is comprised of globally networked users who seem to derive pleasure through social networking, producing a "productive composition of bodies as aggregates of networked ICTs" (Cote & Pybus, 2007: 97), then "immaterial labour 2.0" on Facebook or MySpace offers companies a basis for targeting their marketing of goods and services. As Coté and Pybus (2007: 97: 103) argue, these networked relations of affinity "are an emergent form of contestation of neoliberal globalization" but they also serve capitalist interests increasingly well, offering new sites for cooptation.

The dialectic of cooptation and resistance is evident in the proliferation of peer-to-peer (P2P) file-sharing of copyright infringing content (M. David, 2010) and in the use of social networking to mount social movements of many different kinds. The Internet is being used to support political opposition, but these activities remain subject to cooptation either by mainstream media or they are subject to surveillance and other online counter-insurgency activities of the state (Bennett, 2003; Cammaerts, 2008; Latham & Sassen, 2005; McCurdy, 2009; Rogers, 2004). The existence of involuntary, or even voluntary cooptation, creates a *prima facie* case for public oversight, if not a case for regulatory intervention. In this paper, the focus is on the strategies of the corporate world rather than on those of the state.

In the next sub-sections I discuss whether the open Internet is being managed to create scarcity conditions that are necessary for the exercise of discriminatory corporate power.

Managing Information Diversity

Although some analysts regard the algorithms devised by Internet search companies as neutral, albeit subject to the tactics of those who seek to manipulate search result rankings, there are few empirical studies of the development of the search engine market and its public policy implications.[ix]

Van Couvering (2010) has shown, for example, how the major Internet search engine providers emerged through overlapping periods of technical entrepreneurship (1994-1997), portal creation and vertical integration (1997-2001), and, subsequently, consolidation and vertical integration. Of 21 companies offering search services in 1994, only six remained by 2005 and, of these, only four were providing search results encompassing most of the Web. She provides a detailed analysis of how these companies offer users a service which is biased as a result of "a set of practices that emphasise the economic aspects of search engine results to the detriment of other aspects such as public interest aspects" (Van Couvering, 2010: 207). Google and a few other dominant companies are operating within an oligopolistic industry structure that enables them to shape users' encounters with information and to maximise the opportunities for generating advertising revenues.

Creating New 'Choke Points'

Economic value is created through market demand for scarce resources. Whether such scarcity is real (as in land) or constructed (as in laws of copyright restricting access to information), this is a fundamental feature of market capitalism. In the 1990s, already there were signs that corporate interests were seeking means to construct the perception of online scarcity, notwithstanding the abundance of digital information; the Internet was not "immune to forces of monopolization" (Mansell, 1999: 157; 2004). At this time, AOL and other corporate players were developing Internet 'portals' as 'walled gardens' with the aim of persuading consumers to stay within these walls, making them targets for advertisers. However, the ease of online search of the ubiquitous Web soon eroded the logic of the 'walled garden', at least for a time.

Anderson[x] argues that "the delirious chaos of the open Web was an adolescent phase subsidized by industrial giants groping their way in a new world. Now they're doing what industrialists do best – finding *choke points*" (emphasis added) (Anderson, 2010: 10). Proprietary standards, creating barriers to entry and a basis for controlling user experience in a market segment, are increasingly

being deployed. The use of standards is not new, but Anderson argues that companies such as Facebook and Apple (iTunes or iPad) are developing new strategies to 'guide' users to online advertising venues by creating artificial scarcity through the provision of higher quality services. This is a new phase of empire building, spawned in part by the recession and the flat-lining of online advertising revenues generated through online search sites (Wolff, 2010). Though this view has been challenged by those who argue that the open Web will prevail, it certainly indicates that new monopolisation strategies are being devised.

There are similar monopolisation tendencies in the market for Internet Service Providers (ISPs). By 2010, in the United Kingdom the ISP market was consolidated with seven large providers.[xi] The process of consolidation had been underway since dial-up Internet access started to become widespread in the 1990s (Javary & Mansell, 2002). In the United States, there is also evidence of an oligopolistic market structure at least for home access to the Internet, enabling ISPs to consider introducing prices for premium quality services in a "cartel-like fashion" (Economides, 2008: 232).

Strategies creating scarcity through price discrimination or by providing services where marketing and social or aesthetic experiences online can be conjoined, are clearly influencing corporate strategies. The neoliberal stance – like the libertarian stance towards the Internet - is to allow the free play of these strategies in the interests (ostensibly) of open innovation and economic growth. What about the interests of citizens?

A Post-Neoliberal Internet Regime?

If there have been few efforts as yet to regulate the Internet itself in the public interest, there are other areas of policy intervention which have profound implications for the future evolution of the Internet, albeit indirectly. These are infrastructure development, content production and radio frequency spectrum

use. Are there signs of a post-neoliberal agenda in these traditional focal points of media and communication policy and regulation?

Network Infrastructure Investment

The extension of 'broadband' connectivity to citizens on a universal basis is an area in which neoliberal policies supporting market-led development prevailed until recently (OECD, 2009). Most governments waited for the private sector to invest in ever-higher bandwidth networks, but the recession at the end of the 2000s appeared to be changing their stance. Government economic stimulus plans include infrastructure investment in their recovery packages. Europe's Digital Agenda and the 2008 European Economic Recovery Plan calls upon Member States to promote competitive investments in fibre networks without "re-monopolising our networks" (EC, 2008; 2010a: 6). In the United Kingdom, the government says it will complement and assist the private sector to deliver a modern communication infrastructure (BIS/DCMS, 2009). And in the United States, the American Recovery and Reinvestment Act of 2009 (United States, 2009) calls for public funding of the 'Broadband Technology Opportunities Program' and the FCC's Broadband Plan encompasses the whole of the broadband ecosystem (FCC, 2010). However, of the one-time stimulus of USD $7.2 billion, only $250 million is targeted at users via non-profit entities (Wallsten, 2009). Overall then, it remains principally the market that is to guide infrastructure development despite the explicit policy claim that broadband networks are central to the economies and societies of these countries and regions.

Broadcast Content Production

Pauwels and Donders (2011 forthcoming) argue that "the holistic remit of public broadcasters as set out in Reith's 'to educate, to inform and to entertain', is truly in jeopardy as a result of the attempts to impose European State Aid policy perspectives" and Jakubowicz (2011 forthcoming) suggests that neither policy nor the organisation of PSB programme production are adapting well to the pressures of the Internet . The criteria upon which judgements are made about

the funding of PSB in Europe have moved towards market tests despite policy statements valuing PSB for its contribution to cultural diversity and social cohesion (EC, 1989, 2007, 2010b). With increasing numbers of digital platforms and citizen co-production of content, some argue that private value and individual consumer choice should be the paramount criteria for judging the value of content. For example, Collins argues that the BBC has monopoly power:

> " there is reason to believe that UK public service broadcasting, amply funded and enjoying a privileged regulatory regime *chills* entry of new suppliers and services." (emphasis added) (Collins, 2002: 15).

Therefore, the role of the state, consistent with the neoliberal agenda – is to curtail the monopoly power of the BBC because of its oligopolistic tendencies. Others insist that PSB policy should not be aimed at remedying market failure, but at contributing to the realisation of citizen rights in a democratic society (Helm, 2005).

Much effort has been devoted to devising a metric for measuring the value of PSB content (Alford & O'Flynn, 2009).[xii] The concept of 'public value' found its way into the BBC's Manifesto, *Building Public Value* (BBC, 2004) as a means of justifying the claim to its annual licence fee in the face of criticism from the private sector that it was making incursions into the competitive marketplace. Methodologically, this concept suggests that it is necessary to find out what citizens think of services by researching underlying public preferences about what is valued through deliberative processes (Kelly*, et al.*, 2002). This is problematic because, as Freedman (2008: 157) says, "the effort to quantify the value of PSB services fails to see broadcasting as a complex social and cultural practice".

The use of 'public value' tests has spread throughout the Europe (Donders & Pauwels, 2008; Moe, 2010). Proposals for major additions to the public service remits of broadcasters are to involve a public consultation which assesses whether ''significant new audiovisual services envisaged by public service

broadcasters serve the democratic, social and cultural needs of the society, while duly taking into account its potential effects on trading conditions and competition'' (EC, 2009a: 84). In effect, PSB content is being treated as a substitutable product that is competing in the market with commercial content. If PSB is treated as a monopoly competing unfairly against private producers, then this appears to be a bid for the creation of scarcity in resources, in this case, creative talent, programme genre, rather than money. Needless to say there are criticisms of this approach (Barnett, 2004; Haque, 2001; Tambini, 2004: 57). Born (2005: 108) argues that this approach projects "monolithic models of digital transition that ignore both the different media ecologies that pertain in different national contexts, with their distinctive regulatory and funding regimes, and the particular social and political environments in which they operate". In line with Williams' comment which opened this paper, she insists that this means that the normative rationale for public intervention is severely weakened.

Radio Frequency Spectrum Policy

Licensing of radio spectrum historically was done by public administrative decision on the basis that this is a scarce resource. Although changes occur at the intensive and extensive margins of spectrum use as a result of technological change, at any given time, there is insufficient useable capacity to support demand (Melody, 1980). Spectrum license decisions are made nationally. In the spectrum arena there is a vociferous debate between those championing non-market methods of assignment and those promoting the value of auctions – and debates centre around the real or perceived implications of spectrum scarcity.

Coase (1959) advocated the use of competitive bidding using the price mechanism as early as 1959 as a means of dealing with spectrum scarcity but it was not until the 1990s that the market regime was used (Hazlett*, et al.*, 2009). The mobile Internet based on wireless networks is a new frontier for revenue generation for content and applications providers. These networks offer enormous scope for commercial developments, just as they do for supporting civil society networking activities.[xiii] However, policy choices have to be made

about the uses of the spectrum which can support these services and these choice depend on decisions about how best to distribute available spectrum bandwidth to users. Benkler puts it this way:

> "whether wireless communications will be better optimized through the implementation of wireless communications systems designed to scale capacity to meet demand dynamically and locally, or by systems based on licensing or spectrum property rights, designed at best, more efficiently to allocate capacity that is fixed in the short term and grows slowly" (Benkler, 2003: 159).

He favours an open wireless system because this will allow for greater technical innovation than a system based on property rights organised using spectrum licenses awarded through auctions. Faulhaber and Farber (2003), on the other hand, argue that the scarcity created by property rights assigned through competitive bidding is a more efficient means of encouraging innovation in the interests of all private and public users. Cave (2002: 5) also advocates reliance on market assignment of spectrum because "undue reliance on regulation is likely to become an increasing brake on economic growth". However, Grunwald (2001: 726) argues that, "auctions might help to put telecommunications licenses in the hands of those who value them the most, but this valuation is one based purely on financial grounds".

Here again we see the primacy of market valuation and little if any hint of a move beyond the neoliberal paradigm. In fact, there are strong advocates for the role of the market as the most efficient means of distributing available media and communication resources in each of the areas considered here.

Conclusion

Hirschman's argued that societies oscillate "between periods of intense preoccupation with public issues and of almost total concentration on individual improvement and private welfare goals" (Hirschman, 1982/2002: 3). In spite of

the recent lesson that markets do not self-correct, in the case of Internet related policies, neoliberal defences of market-led developments with declining regard for the public interest, are prevailing in many segments of Internet activity. Whether under the guise of market-led, state-led or co- or self-regulation, decisions are being taken by governments and firms that privilege market solutions (Tambini, *et al.*, 2008). We should be wary of the progressive narrowing of a public space in which communicative practice can be conducted. This narrowing effect is consistent with the determination of private actors to impose relationships of scarcity in the Internet industry; an industry that needs to transform public goods into privately appropriable commodities if it is to grow profitably.

What we are witnessing is a continuation of a process that Garnham emphasised at the beginning of the 1990s. The trend he said would be "to shift the balance in the cultural sector between the market and public service decisively in favour of the market and to shift the dominant definition of public information from that of a public good to that of a privately appropriable commodity" (Garnham, 1992: 363). We should not be surprised by the seemingly paradoxical alignment between the interests of the libertarians in an open, cooperative, sharing culture online which resists intrusions by government regulation, and the interests of those who find, in the absence of such intrusion, opportunities to experiment with the means for the private appropriation of the activities of those who are 'free' to engage in online activities.

Garnham consistently stressed that there is "*no necessary coincidence* between the effects of the capitalist process proper and the ideological needs of the dominant class" (emphasis added) (Garnham, 1986: 23). If we are to understand the potential for a shift beyond neoliberal policies for the Internet in the interests of citizens, we need to examine the contradictions between the means of private appropriation and public resistance. How to do these intersect? Characterising policy options as neoliberal 'versus' libertarian encourages a debate that lurches from one extreme to the other. Unless we envisage a future in which capitalism ends, we have to accept that market forces will operate.

When they yield an oligopolistic industry then we need to lay bare the strategies and to counter their negative consequences through regulatory and policy measures, as well as through the resistances of civil society movements that value a 'free' Internet. However, we should acknowledge that both the private sector and the proponents of an unregulated Internet, at least at present, are often promoting practices consistent with the goals of neoliberalism, even as they espouse different values.

Whether the focus is on newspapers, television, telecommunication networks, the Internet Protocol itself, or digital devices and information, we are seeing increasing individualisation and fragmentation of the mediated online world in the interests of the state in surveillance and security and in the interests of large firms in wealth creation. Reform movements, in the interests of citizens and democratic values, need to ask the question 'What kind of information society do we want?' If we want to maintain or indeed broaden the media and communicative space for an engaged citizenry, the available mechanisms for shaping the Internet need to be brought into play. Leaving pro-active policy and regulatory intervention out of the mix is a choice consistent with the erosion of that space.

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Notes

i Some argue that forums such as the Internet Governance Forum are playing this kind of role. See, for example, (Kleinwachter, 2007), although others would disagree (Souter, 2007).

ii See (Berdou, 2011) for a detailed empirical examination of software developers in open source software communities.

iii For a discussion of the difficulties associated with interventions in connection with the infrastructure that supports connectivity to the Internet, see (Mansell & Steinmueller, 2011 forthcoming).

iv Of course if regulation is defined broadly to include legal requirements such as those in some countries requiring ISPs to reveal the names of illegal file-sharers, or requirements to take-down privacy intruding, pornographic or hate literature, then the Internet is 'regulated'.

v This is especially so in the debates about 'net neutrality'. The scope of this paper does not extend to an analysis of the ongoing debate on network neutrality.

vi See also (Van Der Graaf, 2009) on the way only a minority of co-producers are actually able to produce in a sophisticated way as a result of limited time or skills.

vii See (Gershuny, 1978) for a discussion of the pressures towards 'self-servicing' and later (Sennett, 2006) who emphasises a similar trend.

viii Smythe argued that "readers and audience members of advertising-supported mass media are a commodity produced and sold to advertisers because they perform a valuable service for the advertisers" (Smythe, 1981: 8). This idea was controversial at the time, leading to an extended debate on whether he had detected a 'blind spot' in Western Marxism (Murdock, 1978).

ix Although see (Halavais, 2009).

x Anderson was among the first to insist on the revenue generating potential of *The*

Long Tail in 2004, (the likelihood that profits might be generated by the scale of sales of content or services on the net that attract a very small proportion of all users), see (Anderson, 2009).

xi In the United Kingdom in 2010, fixed Internet access service to more than 400,000 subscribers is provided only by BT, O2 (taking into account its fixed internet access subscribers only), Orange (taking into account its fixed internet access subscribers only), the Post Office, Sky, TalkTalk Group and Virgin Media, accounting for 95.6% of the residential and small and medium-sized business broadband market (Ofcom, 2010).

xii The public value concept was developed in the United States (Moore, 1995) to understand how public sector organisations might aim to operate in a way that is perceived as being substantively valuable, legitimate and politically sustainable. See (Kelly*, et al.*, 2002).

xiii For a detailed history of the mobile Internet, its constraints and opportunities and the strategies of corporate players, see (Ibrus, 2010).