

Electronic Information as a Commons: The Issue of Access

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New digital information and communication technologies (ICTs) have the potential to expand opportunities for free speech and free exchange of information among a diversity of constituencies. The interactive nature of computer-based communication technologies like electronic mail, the Internet, and the World Wide Web make them unique and powerful settings for democratic discourse.¹ Unlike traditional media, the Internet has no central control point.² Users of this medium can become both producers and receivers of information; anyone with content to publish or ideas to exchange can do so from any point on the network.³ But along with these increased capabilities comes a new kind of tension, as the democratizing potential of new technologies clashes with the growing concentration of ownership and privatization of information among multinational media and entertainment firms.⁴

Many observers have pointed out that a particular two-dimensional focus has characterized information and communications policy in the United States.⁵ Policy implementation has been described as an effort to maintain equilibrium: While we typically favor a market-based, property regime to ensure that information is efficiently produced and exchanged, this approach frequently results in the concentration of control and ownership of resources in the hands of a small number of large corporations.⁶ To correct this imbalance, we typically rely on government intervention in the form of subsidies, regulations, and some direct control of information production and exchange. Given the unique characteristics of the emerging digital on-line environment however, it is extremely unlikely that reliance on this bifurcated approach will enable us to leverage the new ICTs to foster democratic values.

Policy that promotes private ownership and control of information and communications resources does not automatically ensure that a wide range of innovative

uses of the Internet and other ICTs will be possible. Under policy favoring the free-market, owners of the network infrastructures are at liberty to use their control to limit users' access to the actual infrastructure itself. They are also free to restrict users to a pre-selected assortment of programming and information products and services – a selection that is almost certain to be most lucrative from the owners' perspective – regardless of whether or not it meets the needs of users.⁷ Without safeguards, the range of speech options that is likely to emerge under such a regime will be based on an individual's ability to pay for access. It will quickly relegate some to an inferior position vis à vis their ability to freely exchange information. Alternatively, an approach that relies too heavily on bureaucratic intervention in the market will fail on constitutional grounds.

This paper examines the viability of a third approach to policy formulation for the Internet – the commons. Part I looks at how user behavior in cyberspace is forcing a re-evaluation of the capabilities of communications networks. Part II reviews current regulatory models for traditional mass media in terms of their access provisions. Part III uses the commons framework developed by Oakerson and Ostrom along with concepts of collective activity from the not-for-profit sector,⁸ to examine how the Internet might be analyzed as a commons.⁹ The final section discusses how the commons framework can serve to frame policy that will foster access, preserve a shared public space, and foster a communally created pool of information resources in the new on-line environment.

Part I: Uses in cyberspace

Many observers have pointed out that the concepts of territorial 'place' lose much of their logic in the on-line environment where the physical rules of time and space (and the laws and regulations of the physical world) apparently fail us.¹⁰ In a digital setting where information must be copied in order to be communicated (and thus shared rather than

simply transmitted) even the concept of ‘sending’ a message between two locations is altered.¹¹ The Supreme Court has recognized that the unique time and space characteristics the Internet represent more than the sum of its parts. In its 1997 decision striking down the *Communications Decency Act* as unconstitutional the Court said: “. . . electronic mail . . . listservs. . . newsgroups . . . chat rooms, and the World Wide Web. All of these methods can be used to transmit text; most can transmit sound, pictures, and moving video images. Taken together, these tools constitute a unique medium – known to its users as “cyberspace” – located in no particular geographical location but available to anyone, anywhere in the world, with access to the Internet.”¹²

The world-wide telecommunications networks have been described as linking a global civil society made up of millions of citizens groups,¹³ encompassing a vast global resource of information preserved in digital form in computer databases.¹⁴ Steven Miller terms the information resources that are collected in cyberspace as “our common resource pool . . . composed of both tangible and intangible assets – ranging from the electromagnetic spectrum to our cultural heritage, from our social life to our privacy.”¹⁵ The Internet is not a monolithic whole; it is a network of user-created networks. As individuals use new ICTs to communicate in on-line environments they become participants in dialogues, expressions, celebrations, rituals, performances, campaigns, caucuses, commercial exchanges, and information transactions.¹⁶ These participants jointly create settings where people can assemble to undertake a variety of shared endeavors, ranging from communication, to trade, to education, to adventure.¹⁷ Carol Rose observes that while property regimes will no doubt persist, some intellectual activity in cyberspace is naturally interactive and synergistic. Ideas and innovation can be enhanced by open access and interaction among all participants.¹⁸ These approaches conceptualize

the information environment as a commons – mutually created, organized, governed, and shared – a space that exists as Charles Neeson cogently points out, “only as we build it, and how we build it is up to us.”¹⁹

A policy framework for this environment, then, must reflect the diverse range of communication activities that are made possible as a result of new ICTs.²⁰ Policy must acknowledge and facilitate the ongoing effort of individuals and diverse groups of users to create open domain environments where ideas can be exchanged, communities can be forged, and innovative forms of commerce can continue to be conducted.²¹ Effective policy will focus on the capabilities of the new digital technologies, rather than on their technical characteristics. Policy that looks past infrastructure and focuses instead on how these new digital tools can be used in innovative ways can foster open, interactive, and interoperable networks and applications. Network architecture is key in this endeavor: end-to-end, open access to a non-discriminatory network infrastructure is essential.²² Policy that promulgates a channellized model of closed, proprietary networks (a model that simply guarantees more pre-selected programming) will undermine not only the democratic value of new ICTs, it will also thwart innovation and ultimately weaken the nation’s ability to compete in the global digital economy.

Part II: Existing regulatory models

Traditionally the distribution of access rights and speech protections among media providers, network operators, and individuals has been shaped by market entry considerations and technological characteristics. The distribution of First Amendment rights were based in part on a medium’s technology, in part on the ease of entry into each market, and in part on the prevailing political influence among the industry players.²³ The courts have developed differing, and arguably contradictory, analytic schemes for the

regulation of various forms of media.²⁴ Four regulatory frameworks have emerged that reflect these varying degrees of access rights and speech protections: the print model, the broadcast model, the cable model, and the common carriage model.²⁵

Print: Print has traditionally received the highest degree of free speech protection, and as such the “private liberty”²⁶ or “newspaper model”²⁷ anchors one end of the spectrum of First Amendment protections afforded communications media in the United States. The Supreme Court has rejected virtually all regulation of the content of newspapers and other written publications. In 1974 Miami Herald v. Tornillo²⁸ held unconstitutional a statute granting political candidates access to the editorial pages of a newspaper. The Court reasoned that a government-mandated right to reply (in this case to negative newspaper articles and editorials) amounted to constitutionally violative compelled speech.²⁹

The print model is based on the assumption that laws that interfere with the content or the editorial discretion of the print press are subject to strict scrutiny.³⁰ As the “paradigmatic First Amendment medium,”³¹ newspapers have traditionally been free to publish with virtually no government involvement. In terms of market entry – access to the market – the press has historically stood unregulated because it has been assumed that anyone with the requisite funds could publish. The numbers of potential publishers is (theoretically) unlimited; government has had no need to interfere to ensure access.

Broadcasting: In contrast to print media, radio and broadcasting have from the beginning been subjected to regulation of the content of their speech.³² The *Communications Act of 1934* enabled the FCC to regulate broadcasting in a manner to serve the “public interest, convenience, or necessity.”³³

Broadcasting has traditionally been regulated using this “public interest” or “scarcity model,” operating on the assumption that the broadcast spectrum was a scarce

resource. Historically, there have always been more potential speakers than the spectrum allocations in any given market could accommodate. The Court recognized a significant governmental power to ensure third-party access to broadcast outlets, reasoning that the scarcity of outlets gave rise to a governmental interest in ensuring a diversity of available programming.³⁴ And while absolute physical scarcity of the spectrum has been discounted by observers,³⁵ and the Court itself has noted this criticism (especially in light of technological changes that have increased the range of available electronic media), this reasoning has been consistently used in decisions regarding access.³⁶ Limitations of spectrum allocations continue to be used to justify government intervention to ensure access, despite the claims by industry players that scarcity is a chimera:³⁷ Over the years the FCC has adopted rules to limit the number of broadcast stations that an individual may own nationwide,³⁸ as well as regulations to restrict the number of stations that may be owned in a single market.³⁹ Newspaper publishers have been prohibited from owning television stations in the same markets in which they publish.⁴⁰ The FCC once promulgated the Fairness Doctrine (now no longer in force),⁴¹ which required that broadcasters provide a reasonable opportunity for the airing of contrasting viewpoints, by offering viewers and listeners programming that reflected a balance of political perspectives and positions. Congress also required that the FCC adopt “reasonable access” rules requiring broadcasters to provide airtime access to federal political candidates.⁴²

Although the various doctrines have fallen in and out of favor with the FCC, the pattern of regulation regarding access to the broadcast spectrum has been relatively consistent. On the theory that the special characteristics of the spectrum warrant careful attention, the courts have upheld access requirements and (very limited) content-based regulation for broadcast media.⁴³

Cable: Regulation of cable networks, which has been variously described as the “gatekeeper,”⁴⁴ “bottleneck/monopoly model,”⁴⁵ or “Turner model,”⁴⁶ falls somewhere between the print and broadcast models with regard to degree of government intervention to both ensure access and protect free speech. The Supreme Court has only recently begun to define the First Amendment status of cable television,⁴⁷ and some observers suggest that the “judicial struggle” with regard to free speech and access issues presented by cable provides some indication of the constitutional status of regulation of new media like the Internet.⁴⁸

Like over-the-air broadcasters, but unlike common carriers, the owners of cable television systems choose the programming and services that their subscribers will receive. The cable operator’s role as programmer has traditionally been limited to the selection of programming sources;⁴⁹ however, recent mergers between AOL and Time Warner,⁵⁰ and AT&T and MediaOne,⁵¹ indicate that cable systems operators no longer continue to act as relatively passive programming conduits. Cable systems providers are now Internet service providers as well. An increasing number of cable systems are being reconditioned to enable two-way broadband cable Internet connectivity. Observers caution that a lack of competition within the cable industry, combined with the cable systems operator’s ability to bundle network access with ISP service, will limit subscribers’ abilities to choose applications and information resources on the Internet.⁵²

The local monopoly in cable franchises means that most cable subscribers have no choice of service supplier.⁵³ Most subscribers’ cable television options are circumscribed by the decisions of a single company: Observers have pointed out that in some ways this situation is more limiting for viewers than existing over-the-air broadcast options.⁵⁴ The

potential for monopoly abuse can be viewed as a rationale that obligates the government to ensure that existing cable systems adequately serve the public.⁵⁵

In 1994 the Supreme Court in Turner Broadcasting Systems v. FCC acknowledged that cable operators represent a category of speakers with First Amendment rights.⁵⁶ However, the 1994 Turner Court declined to treat cable using a print model, on the reasoning that the “bottleneck” characteristics of most cable systems justify access regulation.⁵⁷ But the Court also rejected the “scarcity” logic underlying the broadcast model as an appropriate rationale for cable regulation,⁵⁸ and applied instead an “intermediate” level of scrutiny.⁵⁹

In 1997 the Supreme Court recognized the constitutionality of the “must carry” provisions of the *Cable Television Consumer Protection and Competition Act of 1992*. These provisions require cable operators to provide their customers with access to certain local commercial broadcast channels and certain public broadcasting stations.⁶⁰ The Court rested its holding on the recognition that cable operators, as gatekeepers, control access to the television programming received by the approximately two-thirds of American homes wired for cable. The Court pointed out that Congress had identified three important government interests served by the must-carry provisions: preserving the benefits of free, over-the-air local broadcast television for those who do not subscribe to cable; promoting the widespread dissemination of information from many sources; and promoting fair competition in the television programming market. The Court observed: “Congress has an independent interest in preserving a multiplicity of broadcasters to ensure that all households have access to information and entertainment on an equal footing with those who subscribe to cable.”⁶¹

Telephones: The telephone networks have been regulated not as mass media, but as public utilities under the “common carriage” model. In 1910 when Congress passed the *Mann-Elkins Act*⁶² it effectively classified telephones, like telegraphs, as common carriers subject to regulation by the Interstate Commerce Commission – the agency which had been created by the *Interstate Commerce Act* in 1897 to regulate railways.⁶³ This Act clarified the disagreement that had existed in the courts during the earlier part of the century as to whether telegraph companies should be considered common carriers like railroads, even though they carried messages, not physical goods.⁶⁴ Nearly a quarter of a century later when the *Communications Act* was drafted in 1934, much of the language for Title II of this Act was adapted from the language of the 1897 Act.⁶⁵ Consequently telephones companies were treated as common carriers and typically continue to be regulated as public utilities.⁶⁶ The telephone industry was treated as a natural monopoly by regulators for most of the twentieth century. Entry into the this market proved costly and competition seemed inefficient. A regulated monopoly, by contrast, had come to be regarded as a means to provide a stable and far-reaching communications infrastructure.⁶⁷ Because it typically operated as a local monopoly in each market, the telephone company was regulated to ensure non-discriminatory service for all customers. Anyone who paid the tariff was permitted to send a message over the network.⁶⁸

This situation exemplifies the puzzling regulatory framework that results when a new medium is regulated, at least initially, like the existing technology which it most closely resembles.⁶⁹ By the end of the nineteenth century, the telegraph had become a familiar and accepted communications technology. When the telephone arrived on the scene, the common carriage laws that governed the telegraph were the model chosen for the new medium. The telephone was seen as the successor to the telegraph – a common

carrier like the railroad – rather than a successor to the printing press as a medium of communication.⁷⁰ Under this model, telephones have anchored the opposite end of the continuum of free speech protections from print media, as passive carriers of third-party communications.⁷¹

In spite of its stratified nature, communications policy in the United States has historically promoted and supported fundamental First Amendment principles.⁷² The rules that seem rigid and artificial in today’s digital, integrated, and converged on-line environment were originally developed to maintain an equilibrium – to preserve the democratic rights of free exchange of information within a communications environment historically owned and operated by the private sector.⁷³ While none of these old models provides a satisfactory “fit” for the new demands of cyberspace, they do serve to point up an important and well-established precedent that government can, and should, implement policy to ensure that goals like access are achieved.⁷⁴ This precedent is especially important in an environment already characterized by concentration of ownership and vertical integration.⁷⁵

Part III: Attributes of the commons

Ronald Oakeron offers a framework that distinguishes four factors or sets of attributes that can be used to analyze the commons: physical characteristics, decision making arrangements, patterns of interaction among participants, and outcomes or consequences.⁷⁶ The specific physical characteristics of jointness, exclusion, and indivisibility are particularly useful for examining the Internet as a commons and identifying access issues that new policy might address.

As a “durable facility of human design and construction that is shared by a community of producers and consumers,”⁷⁷ the Internet exhibits a fundamental

characteristic of the commons. The architecture of the Internet and the digital tools available on-line give have historically combined to enable users to become both producers and receivers of a vast range of content and services.⁷⁸ And although an increasing amount of this content is subject to property regimes, in some important respects the information available on the Internet resembles a fugitive resource: While a given digital resource certainly must actually reside on a computer server in some real-world location, users do not treat these resources as places-based or “fixed” in the familiar sense. Users in cyberspace have no need to weigh the proximity of this computer server in their decisions to use a given resource. This treatment is, of course, in sharp contrast to the way existing print and broadcast content is used.

Jointness: An analysis of the degree of jointness present in a commons focuses in part on how many users can use the resource at a given time without interfering with each other or diminishing the overall benefit available to the group. Jointness was originally developed to describe a pure public good – a situation where one person’s use does not subtract from the use of others (in contrast to private goods where one person’s use consumes and destroys a good). The focus here is the degree to which more than one person can make use of the same good – either serially or simultaneously. In a physical commons, at some point the number of users begins to subtract from the overall benefit. This is manifested in two ways: The amount a given user consumes at any time will not be available for others. Over time the cumulative consumption will diminish the usefulness of the commons for all users.⁷⁹

Information (or content) is typically the resource that users associate with cyberspace, but an equally valuable aspect of the Internet is the capability it gives each user to connect and to interact with other users. These capabilities – interactivity and

connectivity – are resources that exhibit varying degrees of jointness and share attributes of both public and private goods. Obviously connectivity depends heavily on guaranteed access to the infrastructure, but unlike a pure public good (that can be shared by any number of users because it is consumed collectively) heavy simultaneous connection to the network can result in congestion, causing all users to experience a slower rate of transmission. If increased capacity is not provided, the network’s overall usefulness is affected to some degree.⁸⁰

However, any limitation due to congestion is overshadowed by the ways in which the Internet and its resources are non-subtractable. With respect to interactivity, the Internet exhibits a very high degree of jointness, in that increased numbers of users on a network typically increase its usefulness. Observers have pointed out that economic benefits – positive externalities – accrue from growth in the networks and the resulting increased connectivity. Thus, in most networks each user has a stake in the network becoming as large as possible because of the extra opportunities for interaction with the new subscribers joining the network.⁸¹ Moreover, on the Internet each additional node or computer server added to the network does not “use up” the ability to interact; instead, each new connection actually expands the resource in terms of information potentially available to others on the network. Each new node extends the potential to communicate, interact, and exchange information. Because a user creates an additional communication channel whenever he or she connects to the network, interactivity capacity is not “used up.” Likewise, when a user leaves or disconnects from the network none of the resource is destroyed. It remains true, however, that certain behaviors on the network can diminish its usefulness. “Flaming” in interactive chat rooms, and invasions of public newsgroups

and other online settings by those intent on disruption can destroy the utility of a given interactive resource, at least temporarily.⁸²

Observers have noted that the information resources created by users on the Internet in many ways resembles a common pool resource (CPR) – a stream or pool of undifferentiated product from which all users may take a portion for their own use.⁸³ In a physical commons, the rate at which users take portions affects the rate at which the commons can replenish the supply. Sharing without using up all the resources requires restraint and coordination among users.⁸⁴ In the on-line environment, the “quirky” characteristics of information mean that one person’s use of information does not consume it in the same way that use of a physical resource might consume it and make it unavailable for others.⁸⁵ Information in digital formats must be copied to be communicated. The sender effectively shares the information in the process of communicating it. Admittedly, the perceived value of information may change over time. A given information resource may be more useful when it is made available in a collection or combined with other information, as in archives or databases for example, but the fact remains that the resource is not destroyed through heavy simultaneous or serial use.⁸⁶ Equally important to some observers is the cultural dimension. The value of information lies not entirely in its value as private property, but in the relationships and exchanges the information itself engenders.⁸⁷

Exclusion: Exclusion refers to the seller’s ability to exclude all buyers except those who are willing to pay a given price. This idea can be extended to include questions of access to commons itself. Two types of exclusion are possible, depending on the nature of a resource or on the technology present in a given commons: Access can be fully regulated for each

user of a commons, or access can be partially regulated and apply only to those outside the immediate group.⁸⁸

This attribute provides a useful perspective on issues of access to the new information environment, because with regard to access, the Internet differs considerably from “real world” physical commons. The Internet’s fundamental organization as a network of user-created networks means that a vast range of entities can be present in the environment at any given time, each with differing needs, desires, and abilities to control access. User behavior within groups *once users are connected on-line* may vary according to behavioral norms. Some groups may permit very limited access to their communities; other may encourage widespread participation. However, the ability to access the whole network infrastructure that we understand and regard as the “Internet“ has historically been regarded as a positive and desirable objective by those who developed the network and its operational protocols, those who recognized its innovative potential, and policy makers.⁸⁹ The Internet’s open protocols, end-to-end architecture, and interconnection policies demonstrate this tradition of open access. The sustainability of the Internet turns not on an ability to limit access, but on the opportunity to extend access to the widest extent possible. The issue with the Internet – unlike most physical commons – is not how to limit access to preserve and maintain the resource, but how to *prevent* arbitrary limitations on access (from privatization and enclosure) from destroying the commons. In light of monopoly control of the ISP broadband cable infrastructure, it seems that privatization is proving dangerous not only because it prevents individuals from hooking up to the network simply because they can’t afford the fee. Privatization is also a threat to the continued existence of the Internet itself because infrastructure owners will control what activities are permitted, or prohibited, once a user is on-line.⁹⁰

Indivisibility: This factor focuses on how the size of a commons affects users' abilities to coordinate.⁹¹ An analysis of the Internet must consider if the network's sheer size and scope make it too unwieldy to treat as a commons. Would it ever be reasonable to promulgate policy to divide up the network into private property? The physical boundaries of a commons typically determine if the commons can be enclosed without destroying its value. But even if the commons is technically divisible into small parts (if it exists as a result of human design alone, for example, without reference to natural or technological constraints) there may be cultural reasons for treating it as if it were not divisible. If as many claim, the Internet cannot be efficiently divided up,⁹² how can regulation address this issue?

At first glance, the Internet's global scope makes it seem too big to be a manageable commons. But the Internet, while potentially world-wide in its reach, has proved "scalable."⁹³ Users do not have to treat the Internet as a global resource, although they may if they desire. User behavior varies across individuals and with the intended use of the network, whether as a means of communicating, interacting, or locating and retrieving relevant information. Activities can range from individuals using e-mail to communicate with the neighbors across the street, to individuals posting information on a web-page for a world-wide non-profit group, to software companies providing applications via download for profit, to small businesses advertising on the Web, to much larger firms engaging in business-to-business transactions. These communications can take place on what we have traditionally considered the "public" part of the Internet, or partly or entirely on private networks that may or may not allow full interactivity with the entire network.

A very useful conceptualization of the behaviors of users in this on-line, scalable, digital environment – one that reflects the value in maintaining the Internet intact –

comes from the literature of non-profit organizations.⁹⁴ The commons is described as a range of behaviors or endeavors undertaken collectively: A commons is any set of social acts characterized by voluntary participation, common purpose, shared resources, mutuality, and fairness. This concept of the commons, or *koinonia*, which dates back to the ancient Greeks, has five principles: 1) participation must be free and uncoerced; 2) participants must share a common purpose; 3) participants must have something in common that they share, such as jointly held resources, a collection of precious objects, or a repertory of shared actions; 4) participation involves a sense of mutuality or friendship;⁹⁵ and 5) social relations must be characterized by fairness and justice.⁹⁶

Any self-defining collective of individuals who voluntarily associate to create communities and to reproduce social worlds (like the groups and gatherings that comprise the “close-knit” communities on the Internet⁹⁷) constitute a commons. A commons can be any of the familiar settings used for social interaction – a temple, clubhouse, academy, forum or city hall – as well as ‘non-settings:’ the social space of a newspaper, academic journal, or electronic bulletin board or chat room, for example. The social spaces of these latter commons are primarily settings for dialogue, assembly, and presentation.⁹⁸

Organizations that comprise commons may have instrumental objectives or expressive functions, or a combination of both, but freedom of expression is a critical component in the formation and activity of any genuine commons. Instrumental commons, for example, may be goal oriented, intent on solving a given problem, often fulfilling a social need. The civic groups, legal aid organizations, consumer organization, soup kitchens, electoral campaigns, and trade unions that form such purposive commons – both on- and off-line – rely on free exchange of information for their continued existence. Expressive commons, those concerned primarily with discussions, presentations,

exhibition, dramatization, rites and ceremonies, obviously also rely on the free flow of ideas. Churches, theatres, companies for the performing arts, fora for public debate, museums, and electronic on-line art exhibits are examples in this category.⁹⁹

The Internet, then, represents various commons utilizing global networks, community nets, and private intranets.¹⁰⁰ Carol Rose has pointed out that most groups that form on the Internet have demonstrated an ability to operate as a commons within a system of property – a form she describes as a limited commons. Rose suggests that for some small groups, the exchange of information and ideas that takes place might be more productive if the participants could engage in discussions that are open and inclusive to the group – subject to agreed-upon norms and rules – but limited to exclude “outsiders.”¹⁰¹

The Internet lends itself to treatment as a commons with regard to jointness, exclusion, and indivisibility. As a network of networks, the Internet is not “used up” by users present in the environment. In fact, each new node added to the network actually increases its size, expanding the resource, rather than consuming it. Information – particularly information in digital formats – has characteristics that allow us to treat it as both a public and a private good. Like the networks, information resources are not consumed in the same manner as other physical resources. Sharing information in the digital environment is how information is communicated.

Some observers refer to the information we are amassing in this new environment as our common pool resource. But the resources created here could also be understood in terms of new capabilities, including the ability to interact, and the opportunity for increased exchange of information in various formats, which leads to innovation, new exchanges, and the creation of new resources. The Internet when analyzed as a commons also reveals shared endeavors that span in both the on- and off-line worlds.¹⁰²

Part IV: Towards a New Framework for Policy Problem-Setting?

Unlike previous media, the architecture and the capabilities of the Internet enable us to behave as if free exchange of information really does exist. It offers a true opportunity to enable a diversity of voices to be heard. An analysis of the Internet as a commons suggests an innovative framework for communications policy that takes the focus beyond old analogies and existing regulatory regimes.

Although physical commons are frequently discussed and analyzed in terms of their potential to create dilemmas, many of the characteristics of cyberspace make the commons an ideal model for communications policy. The commons framework places an emphasis on the need to ensure access and guarantee open domains (and the need to balance the exponential growth of proprietary domains¹⁰³) that has been absent from traditional regulatory models. The commons framework provides a particularly useful counterbalance to the market-driven approach that usually dominates any discussion of the communications policy. It offers a basis for policy that is distinct from private property regimes and or direct state intervention, but which can encompass both. The framework indicates that network access itself can feasibly be regarded as a valuable good, and that non-commercial content produced within a commons can be treated equitably, on par with private property and public goods. This is an essential frame of reference for policy problem-setting.

Framing the Internet as a commons using the attributes outlined in this paper highlights a number of policy considerations that would likely not receive attention under existing regulatory approaches. Even a preliminary analysis of jointness indicates a need to ensure the Internet will have sufficient capacity to keep up with demand and avoid congestion for all users, regardless of their ability to pay. This attribute further reveals

that policy must recognize of the value of interactivity and connectivity as capabilities not previously available from traditional media. Policy must also recognize the new activities that occur as a result of these resources. The need to preserve the status of information with characteristics of both public and private goods is clear under this model. It is also necessary to ensure that the presence of private property (like the monopoly control of network infrastructure, and the ability to bundle services) does not destroy the free exchange of information. An analysis of exclusion demonstrates a real need to prevent arbitrary limits on infrastructure access by network owners. Finally, an examination of the feasibility of dividing up the Internet reveals the strong need to preserve a portion of cyberspace as a public space, open to all users, to enable a range of collective activities.

The commons framework also brings to the foreground the behaviors of “third sector” constituencies – those educators, artists, writers, consumer advocates, volunteers, trade unionists, and religious organizations among others, whose messages are largely absent in the traditional mass media – and whose work could revitalize the nation’s democratic culture. It is clear that computer-mediated interactive communication can foster communities of individuals on-line who act to make differences in the real world. When defined as a collective undertaking, the commons emphasizes discourse and focuses attention on the importance of protecting spaces for these free exchanges of information. In light of increasing private control of on-line spaces, and in the face of vast offerings of consumer-oriented commercial content on the Internet, the opportunity exists for policy using a commons framework to foster public dialogue. While a commons may serve many functions, it is often particularly effective as a space where individuals simply meet and talk in the course of everyday activities. And as participation in Internet chat rooms,

community newsgroups, and other on-line gathering places indicate, there is a powerful need and a strong interest in maintaining outlets where citizens can express their ideas.

Policy predicated on a framework that recognizes these needs can support renewed discourse. Commentator Jon Katz, (who describes younger users of computer-mediated communication technology as the “postpolitical”) predicts without irony a future that can be quite different than what we have in the commercial mass media marketplace today: “It’s possible that we could end up with a media and political culture in which people could amass factual material, voice their perspectives, confront other points of view, and discuss issues in a rational way.”¹⁰⁴ By shifting focus from linear transmission models to multidirectional and interpersonal communication models, the commons framework offers policy makers a clearer sense of how users might actually be applying the new ICT capabilities to a vast range of daily activities.

Communications policy in the United States has set forth discernable social goals that remain essential. New social goals have come to light with the emergence of new ICTs. The commons framework gives policy makers the necessary focus and scope to lift debate about cyberspace out of a discussion centered on how to protect the status quo of transmission and entertainment industries.

Notes

¹ Anthony G. Wilhelm, "A Resource Model of Computer-Mediated Politics Life," Policy Studies Journal, 25 (Winter 1997): 532, footnote 1.

² Jerry Berman & Daniel J. Weitzner, "Technology and Democracy," Social Research, 64 (Fall 1997): 1314-1315.

³ Bonnie Fisher, Michael Margolis & David Resnick, "Breaking Ground on the Virtual Frontier: Surveying Civic Life on the Internet," American Sociologist 27 (Spring 1996): 13-14.

⁴ Ken Auletta has described these two trends as "warring with each other." See Alex Chadwick, "Integrity of Journalism Threatened by Mergers?" Morning Edition, NPR Radio, Transcript #1919-11, 25 July 1996.

⁵ See generally, Yochai Benkler, "The Commons as a Neglected Factor of Information Policy," Working Draft Paper, available at www.law.nyu.edu/benkler/ (visited 31 March 2000) (hereafter "Commons as a Neglected Factor"); Carol M. Rose, "The Several Futures of Property: Of Cyberspace and Folk Tales, Emission Trades and Ecosystems," Minnesota Law Review, 83 (November 1998):129; Mark A. Lemley and Lawrence Lessig, "In the Matter of Application for Consent to the Transfer of Control of Licenses MediaOne Group, Inc. to AT&T Corp.," Written Exparte Comments Before the Federal Communications Commission, CS Docket 99-251 (nd), at CYBER.LAW.HARVARD.EDU/works/lessig/cable/fcc/fcc.html (visited March 31, 2000) (hereafter, Lemley & Lessig, Exparte); and Pamela Samuelson, "The Digital Rights War," Wilson Quarterly, 22 (Autumn 1998).

⁶ Benkler, Neglected Factor."

⁷ Yochai Benkler, "The Free Republic Problem: Markets in Information Goods vs. The Marketplace of Ideas," Conference Paper for Private Censorship/Perfect Choice: The New Age of Information Regulation, Information Society Project, sponsored by the Yale Law School, (April 1999) at webserver.law.yale.edu/censor/benkler.htm (visited March 31, 2000) (hereafter, "Free Republic Problem.").

⁸ Ronald J. Oakerson, "Analyzing the Commons: A Framework," in Daniel W. Bromley, et. al., eds. Making the Commons Work, (San Francisco: Institute for Contemporary Studies, 1992), 42-59; Elinor Ostrom, Governing the Commons : The Evolution of Institutions for Collective Action, (New York : Cambridge University Press, 1990); Roger A. Lohman, The Commons: New Perspectives on Nonprofit Organizations and Voluntary Action, (San Francisco: Jossey-Bass Publishers, 1992).

⁹ The Internet and World Wide Web have been described as a global commons. See for example Elinor Ostrom, et. al., "Revisiting the Commons: Local Lessons, Global Challenges," Science, 284 (9 April 1999): 279, and Jaron Lanier, "Virtual Commons," Whole Earth, (Fall 1998): 24.

¹⁰ David R. Johnson, "Traveling in Cyberspace," Legal Times, (3 April 1995): 26. See also Esther Dyson, George Gilder, George Keyworth, & Alvin Toffler, Cyberspace and the American Dream: A Magna Carta for the Knowledge Age, Release 1.2, (Washington D.C.: Progress & Freedom Foundation, August 1994). Dyson et al persist in describing the new information environment in terms of physicality. They explain its use in terms that focus on the characteristics of existing technology: access *from* cyberspace *to* the physical world

is attained through “portals.” Some of the portals, like television, offer one-way information flows; other portals, like the telephone network, are two-way. These portals act like apertures that permit users in the physical world to search for and retrieve information, exchange intelligence, add ideas, alter facts, and delete data within the electronic world.

¹¹ Rose, 145, and Johnson, 26.

¹² Reno v. U.S. Slip Opinion No. 96-511 (Argued March 19, 1997; Decided June 26, 1997).

¹³ Hazel Henderson, “New Markets and New Commons,” Futures, 27 no. 2 (1995): 120.

¹⁴ Harlan Cleveland, The Global Commons: Policy for the Planet. (Boston: The Aspen Institute/University Press of America, 1990), 100-102. Cleveland refers to both an “information commons” and a “brainwork commons.”

¹⁵ Steven E. Miller, Civilizing Cyberspace: Policy, Power and the Information Superhighway, (New York: ACM Press, 1996), 380.

¹⁶ This idea has long been present in other “commons.” See for example, the analysis of the non-profit sector as a commons in Lohman, 62.

¹⁷ Peter Kollock describes as public goods the collective planning and execution of projects on the Internet. See Peter Kollock, “The Economies of Online Cooperation: Gifts and Public Goods in Cyberspace,” in Marc Smith and Peter Kollock, eds. Communities in Cyberspace, (London, Routledge, 1999), chapter 9. See also, Mark Stefik, Internet Dreams: Archetypes, Myths, and Metaphors, (Cambridge, MA: MIT Press, 1996), xx-xxiv.

¹⁸ Rose, 153.

¹⁹ Charles Neeson, “Introductory Remarks,” Open Code, Open Content, Open Law: Building a Digital Commons, Strategic Planning Session, Berkman Center for Internet and Society, Harvard Law School (May 20, 1999), 1.

²⁰ See for example the descriptions of “communities” created by users in cyberspace, in Robert D. Hof, Seanna Browder, and Peter Elstrom, “Internet Communities: Forget Surfers, A New Class of Netizen is Settling In,” Business Week, 5 May 1997.

²¹ Howard Rheingold, The Virtual Community: Homesteading on the Electronic Frontier, (Reading, MA: Addison-Wesley, 1993), 14, 299-300.

²² Lawrence Lessig, “It’s the Architecture, Mr. Chairman,” op-ed (nd) at cyber.law.harvard.edu/works/lessig/cable/Cable.html (visited March 31, 2000); Lemley & Lessig, Exparte; Tara Lemley, Architecture is Policy Case Study: Cooperative Development as a Means for a Standards-Based Implementation for Privacy on the Internet, Electronic Frontier Foundation, (April 1999) at www.eff.org/pub/Privacy/19990406_EFF_MS_P3P_Paper/index.html (visited March 31, 2000).

²³ William J. Drake, “Introduction” in Drake, ed. The New Information Infrastructure: Strategies for U.S. Policy, (New York: Twentieth Century Fund Press, 1995), 10-11.

²⁴ Norman Redlich and David R. Lurie, “First Amendment Issues Presented by the ‘Information Superhighway,’” Seton Hall Law Review 25 (1995): 1448-1449.

²⁵ See generally, Ithiel de Sola Pool, Technologies of Freedom (Cambridge, MA: Harvard University Press, 1983), Chapters 4-7.

²⁶ Allen Hammond, “Regulating Broadband Communication Networks,” Yale Journal on Regulation 9 (1992): 204.

²⁷ Erik Forde Ugland, “Cable Television, New Technologies and the First Amendment After Turner Broadcasting System v. F.C.C.,” Missouri Law Review, 60 (Fall 1995): 818.

²⁸ Miami Herald v. Tornillo, 418 U.S. 241 (1974).

²⁹ Miami Herald v. Tornillo, 256-58. See also, Pacific Gas & Electric C. v. Public Utilities Commission, 475 U.S. 1, 20-22 (1986). A mandate that utility consumer advocacy group materials be sent with bills to customers was found unconstitutional.

³⁰ See generally, Miami Herald Publishing Co. v. Tornillo, 418 U.S. 241 (1974).

³¹ Matthew D. Bunker and Charles N. Davis, “The First Amendment as a Sword: The Positive Liberty Doctrine and Cable Must-Carry Provision,” Journal of Broadcasting and Electronic Media 40 no. 1 (Winter 1996): 79.

³² FCC v. Pacifica 438 U.S. 726, 98 S. Ct. 3026 (1978); Red Lion v. FCC 395 U.S. 367, 89 S. Ct. 1794 (1969); NBC v. U.S. 319 U.S. 190, 63 S. Ct. 997 (1943).

³³ 47 U.S.C.A subsection 309(a) (1991).

³⁴ Redlich and Lurie, 1449.

³⁵ Richard Labunski, “The First Amendment at the Crossroads: Free Expression and New Media Technology,” Communication Law and Policy 2, no. 2 (Spring 1997): 184.

³⁶ “When there are substantially more individuals who want to broadcast than there are frequencies to allocate, it is idle to posit an unbridgeable First Amendment right to broadcast comparable to the right of every individual to speak, write or publish . . . A license permits broadcasting, but the licensee has no constitutional right to be the one who holds the license or to monopolize a radio frequency to the exclusion of his fellow citizens.” Red Lion Broadcasting v. FCC 388-389. See also Turner Broadcasting System v. FCC 114 S. Ct. 2445, 2456 (1994) (hereafter Turner (1994)); FCC v. League of Women Voters, 468 U.S. 364, 376 n. 11 (1984).

³⁷ The Clinton Administration continues to justify broadcast regulation based on this perspective. See “Clinton on Communications,” Broadcasting and Cable, 126 no. 40 (23 September 1996): 22-23. But see “Editorial,” Broadcasting and Cable, 126 no. 40 (23 September 1996): 82: “with due respect, that principle (of scarcity) no longer holds – if it ever did. With so many media voices, scarcity has become ludicrous on its face.”

³⁸ U.S. v. Storer Broadcasting Co., 351 U.S. 192, 76 S.Ct. 763, (1956). FCC regulation limiting ownership to no more than 7 AM, 7 FM and & TV stations was upheld. But since 1956 the rules limiting ownership have been loosened. The Telecommunications Act of 1996 stipulates that no limit is placed on the number of television stations a single individual or company can own. However, the television stations owned by a single party cannot reach more than 35 percent of all TV households in the United States. Telecommunications Act, Title II, sec. 202 (c)(1)(B).

³⁹ *In re Rules Relating to Multiple Ownership*, 22 FCC 2d. 306, 18 R.R. 2d 1735 (1970). Telecommunications Act, Title II, sec. 202 (c)(2)(d): “Relaxation of One-To-A-Market: With respect to its enforcement of its one-to-a-market ownership rules under section 73.3555 of its regulations, the Commission shall extend its waiver policy to any of the top 50 markets, consistent with the public interest, convenience, and necessity.”

⁴⁰ FCC v. National Citizen's Committee for Broadcasting, 436 U.S. 755, 98 S. Ct. 2096 (1978). Justice Marshall, writing for the Court, said: "Requiring those who wish to obtain a broadcast license to demonstrate that such would serve the "public interest" does not restrict the speech for those who are denied licenses; rather it preserves the interest of the 'public as a whole . . . in free speech.'

⁴¹ Red Lion Broadcasting Co. v. FCC 395 U.S. 367, 89 S. Ct. 417 (1969). See also Syracuse Peace Council v. FCC 867 F. 2d 654 (D.C. Cir. 1989), cert. denied, 493 U.S. 1019, 110 S. Ct. 717 (1990), which affirmed the FCC's 1987 repeal of the fairness doctrine as no longer "in the public interest," without reaching the Constitutional question of whether changes in technology or in the FCC's experience administering the doctrine justified treating it as impermissible under the First Amendment.

⁴² See CBS v. FCC 453 U.S. 367, 101 S. Ct. 2813 (1981); and 47 U.S.C.A. sec. 312 (a) (7), and sec. 315.

⁴³ Rodney Smolla, ed., Smolla and Nimmer on Freedom of Speech: A Treatise on the Theory of the First Amendment (New York: Matthew Bender, 1994), sec. 14.01[1].

⁴⁴ Redlich and Lurie, 1452, Bunker and Davis, 85.

⁴⁵ Ugland, 822.

⁴⁶ Cass Sunstein, "First Amendment in Cyberspace," Yale Law Journal 104 (1995): 1765.

⁴⁷ See for example, Denver Area Consortium v. FCC 116 S. Ct. 2374 (1996) and Turner Broadcasting Inc. v. FCC, 117 S.Ct. 1174 (1997).

⁴⁸ See for example, Redlich and Lurie, 1450.

⁴⁹ After choosing a given roster of channels it provides an unedited stream of programming to its customers. Turner Broadcasting System v. FCC, 114 S. Ct. 2445, 2452 (1994).

⁵⁰ John R. Wilke & Kathy Chen, "You've Got Time Warner: Merger Partners Vow Open Access to Cable Lines," Wall Street Journal, (11 January 2000): B1. But see, George Gilder, "Open Access Now! Wait, Never Mind," Wall Street Journal, (18 February 2000): A 14; Kathy Chen, "Disney Frets over AOL Merger Plan: Programming Worry Has Led to Lobbying in Capitol Hill Offices," Wall Street Journal, (23 March 2000): A24.

⁵¹ Stephen Labaton, "AT&T's Planned MediaOne Deal Poses Test for U.S. Cable Policy," Business, New York Times on the Web (18 August 1999) at www.nytimes.com.

⁵² See for example, Consumer Federation of America, Transforming the Information Superhighway in a Private Toll Road: Ma Cable and Baby Bell Efforts to Control the High-Speed Internet (October 1999); Lemley & Lessig, *Exparte*.

⁵³ The court in Chicago Cable Communications v. Chicago Cable Commission, 879 F. 2d 1540 (7th Cir. 1989), concluded that cable is an "economically scarce medium" and unlike other forms of print media, "enjoys a virtual monopoly over its area." Turner Broadcasting Inc. v. FCC 117 U.S. 1174, 1190 (1997): "Cable operators possess a local monopoly over cable households. Only one percent of communities are served by more than one cable system. Even in communities with two or more cable systems, in the typical case each system has a local monopoly over its subscribers. Cable operators thus exercise control over most (if not all) of the television programming that is channeled into the subscriber's

home . . . [and] can thus silence the voice of competing speakers with a mere flick of the switch.”

⁵⁴ Redlich and Lurie, 1451, Berman and Weitzer, 1622.

⁵⁵ 47 U.S.C.A. 541 (a)(1). Federal statute prohibits municipalities from granting exclusive cable franchises. See also, City of Los Angeles v. Preferred Communications, Inc. 476 U.S. 488, 495 (1986).

⁵⁶ Turner Broadcasting Systems v. FCC, 114 S. Ct. 2445, 2456 (1994), citing Leathers v. Medlock, 499 U.S. 439, 444 (1991).

⁵⁷ “When an individual subscribes to cable, the physical connection between the television set and the cable network give the cable operators bottleneck, or gatekeeper control over most (if not all) of the television programming that is channeled into the subscriber’s home.” Turner Broadcasting System v. F.C.C. 114 S. Ct. 2445, 2464 (1994).

⁵⁸ Turner Broadcasting System v. F.C.C. 114 S. Ct. 2445, 2457 (1994).

⁵⁹ Under this analysis, legislation that affects speech but that does not favor the message of one speaker over another can be constitutional if the legislation (1) furthers an important governmental interest, and (2) does not burden more speech than necessary to advance that interest. U.S. v. O’Brien, 391 U.S. 367 (1968).

⁶⁰ 47 U.S.C.A. 534(a), 535(a) (1997 Supp.).

⁶¹ Turner Broadcasting Inc. v. FCC 117 S.Ct. 1174, 1189 (1997). In his concurring opinion, Justice Breyer noted that despite the fact that the editorial function of cable operators and the free speech rights of some viewers are adversely affected under this regulatory framework, the interests protected by these access provisions justify these regulations: “I do not deny that the compulsory carriage that creates the ‘guarantee’ extracts a serious First Amendment price. It interferes with the protected interests of the cable operators to choose their own programming; it prevents displaced cable program providers from obtaining an audience; and it will sometimes prevent some cable viewers from watching what, in its absence, would have been their preferred set of programs. This ‘price’ amounts to a ‘suppression of speech.’ *But there are important First Amendment interests on the other side as well . . .* [that seek] to facilitate the public discussion and informed deliberation, which, as Justice Brandeis pointed out many years ago, democratic government presupposes and the First Amendment seeks to achieve. Indeed, Turner rested in part upon the proposition that ‘assuring that the public has access to a multiplicity of information sources is a governmental purpose of the highest order, for it promotes values central to the First Amendment.’” Turner Broadcasting Inc. v. FCC 117 S.Ct. 1174, 1204 (1997), footnotes omitted, emphasis added.

⁶² 36 Stat. 539, (1910), superseded by the Communications Act of 1934, 48 Stat. 1064.

⁶³ The Mann-Elkins Act was intended to revise existing railroad regulation. The regulation of the telegraph and telephone seemed to represent almost an afterthought. The Congressional debate on the topic of common carriage proved surprisingly perfunctory and unilluminated. The term “common carrier” was never defined, but the monopolistic tendencies of the industry were noted by Representative Mann: “ [one of the] greatest monopolies in this country today . . . an if it is right and proper to regulate the great railroad systems of this country in the interest of commerce, it is equally right to limit and regulate the telephone and telegraph companies.” At least one other Congressional

representative agreed: Representative Hobson stressed that to leave telegraph and telephone companies unregulated would, “leave private corporations with the power to tax people at will. They are now just as fundamental for commerce as the railways themselves.” 45 Congressional Record, 5534 - 5536 (1910).

⁶⁴ See for example, State ex. rel. Webster v. Nebraska Telephone Co. 22 N.W. 237 (1885), and Tyler, Ullman & Co. v. Western Union Tel. Co. 60 Ill. 421 (1871).

⁶⁵ The definition of “common carrier” contained in the Communications Act of 1934 is circular. Section 3(h) defines a common carriers as “any person engaged as a common carrier for hire, in interstate or foreign communication by wire or radio . . . but a person engaged in radio broadcasting shall not, insofar as such person is so engaged, be deemed a common carrier.” 47 U.S.C.A. section 153(h) (1988).

⁶⁶ The pro-competitive provisions of the 1996 Telecommunications Act notwithstanding, competition in the local phone market has been extremely slow to emerge. See, for example, Mark Landler, “Most Residential Phones are from Local Monopoly,” New York Times, 22 May 1997, D1: “Sixteen months after the government opened the \$100 billion local phone market to competition, a new [Yankee Group] study has found that fewer than half of 1 percent of Americans receive their residential phone service from a competitor to the local monopoly.”

⁶⁷ “The importance of unity must sooner or later overcome all obstacles standing in the way of combination of the various telephone interests . . . Two telephone companies cannot perform the same service which one can perform, inasmuch as complete unity is lacking. The object of the telephone is to bring people together, and the more completely it does this, the better it performs its function. Two or more competing telephone plants, however, separate people, and thus operate antagonistically to the purpose for which the telephone was established.” Richard T. Ely, Monopolies and Trusts (New York: MacMillan, 1912), 64.

⁶⁸ 47 U.S.C.A. subsection 201(a) and (b).

⁶⁹ de Sola Pool, 231-248.

⁷⁰ de Sola Pool, 103.

⁷¹ Redlich and Lurie, 1450. The First Amendment rights of telephone companies are now recognized. Arthur Bresnahan, “The (Unconstitutional) Telco-Cable Cross-Ownership Ban: It Seemed Like A Good Idea At The Time,” Michigan Telecommunications and Technology Law Review 1 no. 3 (1995) at www.umich.edu/~mttlr/VolOne/Bresnahan.html (visited 31 March 2000).

⁷² Robert Britt Horwitz, The Irony of Regulatory Reform: The Deregulation of American Telecommunications (New York: Oxford University Press, 1989), 14, and Monroe E. Price, “Free Expression and Digital Dreams: The Open and Closed Terrain of Speech,” Critical Inquiry 22 (Autumn 1995):85.

⁷³ “We have noted that “it has long been a basic tenet of national communications policy that the ‘widest possible dissemination of information from diverse and antagonistic sources is essential to the welfare of the public’. Turner Broadcasting Inc. v. FCC, 117 S.Ct. 1174, 1187 (1997), quoting Turner Broadcasting System v. FCC, 512 U.S. 622 (1994), at 663-664 (quoting United States v. Midwest Video Corp., 406 U. S. 649, 668, n. 27 (1972) (plurality opinion) (quoting Associated Press v. United States, 326 U. S. 1, 20 (1945)). “Congress has an independent interest in preserving a multiplicity of broadcasters to

ensure that all households have access to information and entertainment on an equal footing with those who subscribe to cable.” Turner Broadcasting Inc. v. FCC, 117 U.S. 1174, 1186 (1997): “. . . here is a corresponding governmental purpose of the highest order in ensuring public access to a multiplicity of information sources,” Turner Broadcasting System v. FCC, 512 U.S. 622 (1994), at 662 (1994).

⁷⁴ Sunstein, 1765. Sunstein argues that new law can begin by building on such precedent. See also Horwitz, 13.

⁷⁵ Robert Kuttner, “Clinton's Talented and Tenacious Regulators,” Washington Post, 2 June 1997, A19. Kuttner writes: “American industry is in one of its great periods of innovation and recombination. At such moments, elite opinion wants to sweep aside all concerns for a broader public interest that industry, in its myopia, cannot pursue. But it is precisely at times like these that government is needed to steer and stabilize. Because of budget pressures there will be little new public spending for the foreseeable future, though the country still needs much that the private market doesn't provide. Government is now left with one oar – regulation – to promote public purposes. It would not be smart to throw that oar overboard.” See also Lawrence Lessig, “The Cable Debate, Part II,” The Standard: Intelligence for the Internet Economy (14 November 1999) at (thestandard.com/article/display/0,1151,5621,00.html) (visited 31 March 2000). Lessig writes, “The law is about setting policy – the policy of fostering competition or fostering a hand-off to another service provider. The complication of cyberspace is that architecture is about setting policy – the policy of fostering competition or fostering a hand-off. Regulation is about which policy should prevail. Governments should be clear about the policy, and let the coders code it.”

⁷⁶ Oakerson, 43

⁷⁷ Oakerson, 41-42. See also, Peter Warshall, “Rethinking the Commons,” Whole Earth, 94 (Fall 1998): 5-6, and Neeson, 1.

⁷⁸ Lemley & Lessig, *Exparte*, 6, 7.

⁷⁹ Oakerson, 43 - 44

⁸⁰ Leslie Cauley, “Heavy Traffic is Overloading Cable Companies' New Internet Lines,” Wall Street Journal, (13 March 2000): B1.

⁸¹ Stephen Graham, James Cornford, and Simon Marvin, “The Socio-Economic Benefits of a Universal Telephone Network,” Telecommunications Policy, 20 no. 1 (January 1996): 8.

⁸² Flaming refers to usually very derogatory e-mail messages that are frequently sent impetuously. For a discussion of the effects of this behavior on users, see Rose, 155-156.

⁸³ See for example, Miller, 380, and Cleveland, 100-102.

⁸⁴ Oakerson, 41-42.

⁸⁵ Yochai Benkler, “Building an Agenda: Where Do We Go From Here?” Session Transcript, Open Code, Open Content, Open Law: Building a Digital Commons, Strategic Planning Session, Berkman Center for Internet and Society, Harvard Law School (May 20, 1999) (hereafter, *Agenda*).

⁸⁶ W. Curtiss Priest, “The Character of Information: Characteristics and Properties of Information-Related to Issues Concerning Intellectual Property,” Paper prepared in

support of the Office of Technology Assessment, Project on Intellectual Property (2 September 1985, revised, 1 October 1994).

⁸⁷ Benkler, Agenda.

⁸⁸ Oakerson, 44-45.

⁸⁹ Lessig makes the point that without regulation to protect the open nature of the Internet, its development would have been impossible. See generally, Lawrence Lessig, Code and Other Laws of Cyberspace (New York: Basic Book, 1999).

⁹⁰ See for example, Lemley & Lessig, *Exparte*.

⁹¹ Oakerson, 45.

⁹² See for example, Benkler, "Free Republic Problem," section 3.

⁹³ Lanier, 24 and generally, Rheingold,

⁹⁴ Lohman, 20.

⁹⁵ Lohman, 58-59.

⁹⁶ Patricia H. Werhane, "Justice, Impartiality, and Reciprocity: A Response to Ed Hartman," Business Ethics Quarterly 4 (1994): 289.

⁹⁷ See for example, Rheingold, 39-64.

⁹⁸ Lohman, 62.

⁹⁹ Lohman, 58. Commons that include both purposive and expressive functions can include charitable organizations that provide both religious and social services. The Salvation Army is one example.

¹⁰⁰ Lanier, 24.

¹⁰¹ Rose, 155 - 157.

¹⁰² See for example, Kollock, Chapter 9.

¹⁰³ Neeson, 1.

¹⁰⁴ Jon Katz, "Birth of a Digital Nation," Wired 5.04 (April 1997) at www.wired.com/wired/5.04/netizen.html (visited 31 March 2000).