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The Electronic Commons

Paul Starr, March 27, 2000

While the rise of electronic commerce excites visions of a new economy, the Internet continues to produce explosive growth in free, public communication. The sheer scale and variety of the electronic public domain are staggering, but the promise is not simply an information cornucopia. Despite all its problems, the Internet has the potential to remedy some historic defects of public communication. It has already begun to do so, and with additional capital and new forms of organization, it can do much more.

Several distinct developments contribute to the transformation of the public domain:

First, much work in the public domain in the legal sense (that is, not subject to copyright or patent) has been traditionally available to only a few. Government data may be buried in files; literary works, out of print. The Internet can make genuinely public what has only been nominally public.

Second, the Internet provides incentives for commercial producers of intellectual property to shift from exclusive, high-priced forms of distribution to more open, low-priced, or free distribution--in short, from proprietary channels of communication to what I'll call the "commercial public domain."

Third, the Internet allows cheap production and dissemination of new noncommercial knowledge. Given the costs of earlier media, many people with shared interests have been too dispersed and unconnected to communicate and cooperate with one another, much less to publish their work. The Internet does not just facilitate dialogue among them; it also provides the basis for combining many small contributions into large collaborative endeavors. It allows many people with political, aesthetic, or other interests, who have no expectation of commercial gain, to make their work publicly available for the first time or to expand from local to global communication.

And, fourth, far from serving merely as a passive conveyance for messages and transactions, the Internet has proved to be a seedbed of innovation. Many of the traditional public sources of information, such as libraries, have been limited in flexibility and slow to innovate. The Internet and online digital libraries are more dynamic, adaptable to different modes of communication, and amenable to innovation in public as well as private goods and services. Nowhere has the innovative potential of the new public media been better demonstrated than in open-source

software--programs whose source code has been openly distributed on the Net and improved through numerous independent contributions. The development of the Internet itself exemplifies that process and its advantages [see Lawrence Lessig, "Innovation, Regulation, and the Internet," page 26].

Should Public Policy Support Open-Source Software?

Find out more by reading the TAP Online Controversy.

This transformed public domain should not be expected to solve the deepest problems of democratic politics. There is no sign that the Internet will engage the disaffected in public life, give voice to the powerless, or raise the standards of debate. Those who have hoped to use the Net to improve elections and the responsiveness of elected leaders have, at least thus far, typically had disappointing results. But it is, nonetheless, good for democracy that the Internet facilitates the production and global dissemination of public goods--public information services, public intellectual technologies, public mechanisms for connecting people and building civil society.

Indeed, the Internet has generated an outpouring of public goods that conventional economic models cannot readily explain. According to the usual logic, goods and services should be underproduced if those who invest in them do not have the proper incentives for individual gain--and in a public domain, they don't. "Freedom in a commons brings ruin to all," wrote Garrett Hardin in his influential 1968 essay "The Tragedy of the Commons," which used a village's overgrazed public land as its paradigmatic case. Hardin was right about the environmental problems that he was primarily addressing. But the story of the Internet has been more like "The Triumph of the Commons." Rather than inhibiting productive energies, the electronic commons has released them. It has enabled many people to find a public for their work that they could never have found through earlier channels of distribution. New markets are being created on the Net; so are new public spaces.

The flourishing of public space on the Internet ought not, however, to lead to complacency about its development. The new public domain faces threats to its integrity and openness, and it is marred by frauds, fakes, and intrusions into personal privacy. Like electronic commerce, the electronic public domain needs law and aggressive advocacy to protect it from lawlessness and monopolistic control, though the greater part of what needs to be done lies outside government. This article is a brief attempt to think through those challenges.

The New Public Works

Think of the public domain in intangible wealth as consisting of all information and communications publicly available for free or at minimal cost. Within that broad expanse are three distinct areas. The first, the legal public domain, consists of works that are not protected by intellectual property rights. Among these are government publications and public data; privately produced literary and other works on which copyright has lapsed or for which copyright protection was never obtained; and knowledge derivable from works still under copyright (which protects the form of expression, not the information or ideas expressed). The second area, the

commercial public domain, consists of work commercially owned and protected by copyright, but open to the public, often for free or at cheap prices. And a third area, the nonprofit public domain, also consists of copyrighted work open to the public at minimal cost, but owned by nonprofit organizations with different incentives from commercial owners. Finally, beyond all these is an illegal public domain--that is, copyrighted work being freely distributed without authorization--which the Internet has also expanded.

Unlike most other property rights, intellectual property rights are temporary. Although some publishers and authors have sought to make copyright perpetual, the premise of the law in Britain and America ever since the eighteenth century has been that all original work, after a fixed period of protection, will move into the (legal) public domain. Nonetheless, the public domain has remained an afterthought of policy. An enormous, well-financed effort is now legitimately devoted to the protection of private intellectual property against digital infringement. But there is no comparable effort to exploit the increased value of public intellectual property in the digital age.

To be sure, much public intellectual property is now available online. Some legislatures, courts, and government departments, particularly at the federal level, have put public documents and data on the Web; the U.S. Census Bureau, for example, posts not only its publications, but also some of its data, along with software for online mapping and analysis. (The Census Bureau, in fact, has eliminated many of its print publications.) However, many states, counties, local governments, and courts have done little to make information available on the Net. The single most important goal of online government publication ought to be improving the transparency of the state. At the very least, laws and regulations, court decisions, public budgets, the minutes of public meetings--all such documents should now be freely accessible online. Just as we have legal requirements for open public meetings and freedom of information requirements for the disclosure of government files, so we need to move beyond desultory experiments and codify requirements for online dissemination (with suitable exceptions for individually identifiable information, such as motor vehicle records).

Government, however, could do far more with public information resources than merely posting documents. For example, much of the data gathered for public purposes is geographical in nature: It describes where people live and work and how certain problems, such as disease or crime, are spatially distributed. Geographic information systems that link different kinds of maps (for example, of environmental risks and epidemiological data) can substantially improve public knowledge. But such systems require considerable investment, and too often governments decide either not to develop them at all or to turn them over to private firms that charge high prices for their use. The development of such resources ought to be seen as the public works of the information age, appropriately demanding public investment.

A Global Public library

No one who surfs the Web can fail to be struck by the vast number of free sites created by individuals and organizations offering historic documents, classic literary texts, technical information, and other work in the public domain. The principal difficulty with these sites is reliability. Readers often have no way of determining whether the texts or data are genuine; some

have been carelessly scanned in without being checked or are mendacious and untrustworthy. And while the dynamism of the Web is exciting, many sites are ephemeral or are not maintained and soon become dated. To make the most of the electronic public domain, we need new mechanisms to solve these problems.

Since the Web defies any kind of centralized control, there will necessarily be many independent efforts. Various organizations already rate sites for their quality, and these efforts will undoubtedly increase, but something more formal--with significant resources behind it--may be necessary to achieve high standards of reliability. One possibility would be to establish an endowed library of the public domain--call it the Global Public Library. This would not be a single site, but rather a means of accrediting sites and channeling philanthropic capital for online development of public intellectual property. The glory of the Web is its distributed character; if one library or a group of scholars somewhere in the world invests time and effort in putting the collected works of Milton online, Milton's writings become universally available. An internationally sponsored library could accredit affiliates in different spheres of knowledge that would put public intellectual property online and pledge to observe certain textual and bibliographic standards. For example, affiliates would have to serve an archival function, offering permanent access to sources at stable URLs (online addresses) or reliably forwarding visitors to new locations. In return, the affiliates would have privileged listing in the Global Public Library and access to funds channeled through it.

The contents of the Global Public Library might not be in the public domain in the legal sense. Some of the affiliates could be nonprofit or commercial organizations that would retain ownership of their own editions, but guarantee that these be freely accessible. Affiliates might choose to make use of a mechanism known as "copyleft," which, unlike copyright, grants unlimited permission to copy and modify, while denying the user the opportunity to copyright the material and thereby monopolize rights over it. For example, the Global Public Library could hold legal copyright to the materials and then provide an unlimited public license, or copyleft, to the world. The model public license for software created by Richard Stallman in 1983 obligates users to make available the source code to all derivative works; they can make a profit by selling modified versions of the software (the impetus here isn't socialism), but they can't ask for a fee for the source code or impose additional license terms, except copyleft. This has proved to be an extraordinarily valuable invention.

The idea here is not to create a monopoly out of the public domain, which in any case would be impossible. Nothing would preclude other sites outside the Global Public Library from offering access to work in the public domain or from building services "on top" of the resources that the Global Public Library distributed. However, unless these sites met accreditation standards for public-domain materials, they wouldn't be able to claim the library's designation (its logo being one thing that would not be in the public domain).

Building a Global Public Library could have significant benefits for traditional, bricks-and-mortar libraries, which face staggering burdens from growing costs. Clearly, online libraries have overwhelming advantages for distributing software, statistical and other computerized data, audio files, and (as bandwidth falls in price) video and multimedia. Even for texts, digital libraries have lower storage costs, more rapid search, hypertext links, and other advantages. In

the next few decades, a great proportion of existing literature will be converted to digital form--a recent advertisement for Microsoft rather optimistically envisions the entire Library of Congress being converted by 2015. Instead of trying to maintain large collections, especially of infrequently used materials, conventional libraries will increasingly reconfigure themselves as information centers that provide guidance and access to online sources, some of which will be commercial and impose new charges. The development of more extensive, trustworthy online sources in the public domain will make this transition more affordable and desirable.

The scholarly disciplines and universities have an important opportunity to reduce library costs by enlarging the public domain of science. In recent decades, the costs of many commercially published scientific journals have soared to astounding levels. Some subscriptions now cost $10,000 a year, and the companies that publish them have reaped phenomenal profits from their captive market, the research libraries. There is no rational basis for these charges, especially in light of the rising use of online alternatives for more rapid communication in physics and other sciences [see Harvey Blume, "Open Science Online," page 44]. In the academic world, unfortunately, electronic publication has become confused with unrefereed publication, and electronic journals carry less prestige. But an online journal can require review and approval by scientists and scholars in the field, and it is their authority that ultimately lies behind any journal's reputation. What's especially exciting is that electronic journals can publish not only conventional articles, but also the data underlying the research, with accompanying software tools that allow readers to do their own analyses. Electronic publication actually makes possible greater scrutiny than in the current system. The disciplines and universities should be actively organizing authoritative electronic publications to break the hold of the commercial journals, to cut costs for their own libraries, and to seize opportunities to improve science and scholarship.

These considerations ought to influence the flow of public and philanthropic funds. Rather than provide only partial support for the development of online resources in the expectation that grantees will make up the rest by charging for access, funders should provide full financing up front and require that public access be free. Donors should even consider making lump-sum grants to publishers to put their electronic archives and back lists into general public use through copyleft. The benefits to community and educational libraries as well as individual readers around the world will be considerable. From an overall welfare point of view, the key economic fact is this: The marginal costs of online publication--that is, the costs of disseminating materials to an extra reader--are near zero; consequently, the usual argument for prices as a means of allocating scarce resources simply doesn't apply. In this case, the interests of efficiency as well as equality favor eliminating prices to the consumer.

□3; The Commercial Public Domain

The phrase "commercial public domain" may seem an oxymoron: If something is commercially owned, how can it be in the public domain? Intellectual property, however, can be made public to varying degrees. Publication of a work puts ideas and information into the public domain without surrendering rights to the work itself. When a magazine is distributed for free or a television show is broadcast, the owner makes public at least for a time the right to read or view the work, though not the rights to copy and redistribute it. The Internet has effectively extended the scope of the commercial public domain. Free sites are everywhere, and their owners plainly

accept that users will copy files--that is what viewing them entails. Indeed, many sites, such as newspapers, invite readers to e-mail a copy of an article to a friend. Also, by creating links to another company's openly accessible, copyrighted text or image files, sites may effectively incorporate them into works of their own. On the Net, the distinction between private intellectual property and the public domain often seems more formal than real: If something is freely available, copyright doesn't much limit how the public uses it.

As the commercial presence on the Internet has grown during the past decade, many people have wondered whether the Net's original premise of free access to information could possibly survive. No one knows for sure what will happen in the long term, but thus far free access has remained the norm for newspapers, magazines, and other media sites even as charge-based services (such as the online version of The Wall Street Journal) have emerged. Some free online publications, such as Slate, have tried to switch to subscriptions, only to return to free access as their traffic fell. As in broadcasting, much content is free to the consumer only because the sites sell eyeballs to advertisers. On the Web, however, sites capture not just eyeballs, but also fingers, which can click through to complete transactions. And this revenue-generating traffic is so valuable that it makes sense for sites to give away lots of content that publishers in other media would charge for. The sites want visitors to come back repeatedly and to see themselves not as an audience but as a community; the aim is to build long-term customer relationships, and free content is thought vital to doing so. Instead of profiting from the sale of content itself, a site may hope to make money by selling customized services related to that content; or instead of profiting from its software directly, a company may give it away because it wants to rope in consumers and make money by performing services that depend on use of its programs.

All these considerations weigh especially heavily because the competition for market share on the Net is intense, and companies that might want to impose charges for content are deterred from doing so. (These pressures have not, however, deterred companies from seeking to patent every conceivable innovation, a development that cuts in the opposite direction.) On the whole, the competitive pressures on the Net have benefited the public, in some cases by opening up unprecedented access to information and entertainment. At no charge, for example, readers today can browse through newspapers and magazines from all over the world, and listeners can find distant radio stations (and other music sites) with the music they love, however esoteric. On the Internet, the benefits of globalization aren't as abstract as they are in trade; the Net has radically reduced the cost of obtaining information from a distance regardless of national boundaries.

At the same time, the commercial development of the Internet has generated problems that seem unlikely to be solved without government regulation and, indeed, without international treaties. Privacy has been the leading casualty. Commercial Web sites have such strong interests in data about their visitors' surfing habits and personal characteristics that they are unlikely to desist on their own from the abuses that have become rampant. Individual Web sites may post their privacy policies, but it is implausible to expect visitors to check the fine print--this is what we hire governments to do.

While libertarians worry about governmental excesses, they often seem blind to the risks of private concentrations of power. The immediate peril to the freedom of the Internet lies in the transition to broadband--the rapid, high-bandwidth service that should make the Net a major

venue for movies, television, and other mass entertainment. As Internet use migrates to broadband, the big cable companies--chiefly AT&T and AOL Time Warner--may come to dominate access and begin charging both users and sites for premium, high-speed connections [see Jeffrey Chester and Gary O. Larson, "End of the Open Road?" TAP, January 17, 2000]. Plainly, the sites that do not have the financial resources will be confined to the periphery of the Web at least as an entertainment medium.

There has already been a growing concentration of Internet traffic in a small number of major commercial sites, primarily the big portals such as Yahoo! and AOL. Indeed, much of the capital going into Internet start-ups has gone to the portals for help in attracting traffic. Broadband will likely accentuate the tendencies toward concentration, giving even more power to the new media gatekeepers (and toll collectors) who sit astride the straits of cyberspace. Can any plausible policy entirely prevent the development of such choke points? I doubt it, but we might at least limit the power of the new gatekeepers in two ways. One is "open access"--requiring cable companies to let customers buy Internet access on equal terms from competing service providers. (AOL supported open-access regulation until its announced merger with Time Warner prospectively gave it control of its own giant cable system; then it said the whole matter could be safely entrusted to the industry.) A second countermeasure, comparable to the funding of public radio and television, is support for nonprofit and educational sites that will need more resources than in the past if they are to participate in the new higher-end Internet services.

The development of the nonprofit public domain is still one reason for optimism about the Web's public implications. The big corporate media will almost certainly dominate mass entertainment and commerce on the Web. But if much of the current TV audience and shopping mall traffic comes to the Internet, why should that influx harm the kinds of public and nonprofit functions the Net is now serving? The Web will still have all of its advantages for low-cost, global, public communication and collaboration. To be sure, space on the viewer's first screen isn't infinite--that's the source of portal power--but there will still be an electronic commons, and it won't be hard to get there.

The Power of Transparency

The debate about intellectual property today is dominated by companies that fear that the new digital environment will prevent them from enjoying the full return on their investments. I see their point--they have every right to those returns--but this is not a problem that keeps me awake at night. After all, the new environment also gives the same companies new sources of earnings that often dwarf the losses from purloined copies. Moreover, one of the powerful lessons of recent experience is that the traditional hold-your-cards-close-to-the-chest, proprietary view of information isn't necessarily the best strategy anyway. Nonetheless, the balance of political influence is entirely on their side: Nearly all lobbying and recent legislative changes favor stricter defense of intellectual property interests over the public domain. If there is a tragedy of the electronic commons, it will most likely be a political tragedy because of the absence of any organized defense of the commons against infringement.

The new public domain is one of the most valuable, if almost accidental, consequences of the digital revolution. It needs its champions. I suggested earlier that the new technology can

improve the transparency of government, but the pursuit of transparency should be seen as a more general goal. Open-source software shows the power of transparency--of opening up knowledge to wide access and participation. Before the Internet took off, there were many competing proprietary online networks: Why did the software for the Internet triumph over others that had received far greater investment? Open-source development of the Internet as a public good produced faster innovation and growth in the network, which consequently became more valuable because it connected so many more people. The open-source approach also encourages trust and allows contributions from unknown, creative people. The electronic commons works because its resources are not readily depleted as use increases--in fact, its value grows the wider it extends.

The triumph of the electronic commons is another lesson, if we needed one, in the relationship between freedom and power. As the new public domain provides an unprecedented platform for free, public communication, so the open-source movement fosters free communication about software design, instead of bottling up knowledge behind proprietary walls. And it turns out this public exposure, far from inhibiting industry, advances it and extends human capacities.

Transparency may be particularly important in the technology that determines how much of our society runs. We expect laws and regulations to be open to inspection and criticism; is it unreasonable to expect the same of some technological systems that have critical public implications? Things that are seemingly technical may be profoundly political.

That is, in a sense, the whole story of the Internet. What started out as a technical curiosity has become vital to the future of liberal democracy. If we want to have an "open society," to use Karl Popper's phrase, we need to conceive of it in terms that are appropriate to the new technological framework of society. We need to make the most of the possibilities for public as well as private enrichment that the Internet lays before us. ¤