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Internet and the Justice System

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Preface: When my friend, Don Horowitz, invited me to comment on the relationship of the Internet to the justice system, I became alarmed, not having seriously considered that this amazing instrument of information propagation might have negative as well as positive effects on the achievement of justice. Judge Horowitz will have done our society a great service simply by asking the question and insisting that we address it.

I.   INTRODUCTION

In a fundamental way, our system of justice is rooted in the sharing of information. Every court decision contributes to a growing body of interpretations of the law and influences future decisions in concrete ways. One is reminded of the Jewish Torah and its associated commentaries.[1] These commentaries, stretching over hundreds of years, help to inform and illuminate the interpretation of the writings and guidance found in the Torah. As our society evolves towards increasing connectivity and online being, our reliance on access to accumulated information and wisdom increases. The Internet and its World Wide Web are early harbingers of the information-dense future to come.[2]

In his well-received book, *Technologies of Freedom*,[3] Ithiel de Sola Pool highlighted the sociopolitical effects of certain, now familiar technologies such as copiers, fax machines, telephones, and mass media. That the Internet is one such technology can hardly be in doubt. The network provides for a freedom of expression that goes far beyond conventional mass media. In the latter, only a select few have the ability to speak with an amplified voice. Perhaps more important, the Internet and the World Wide Web provide for the opportunity to hear as well as

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1. The Talmud including the Mishnah, and some wags think also of the Meshuginnah.

2. For an extraordinary list of relevant publications, see Nolan Bowie, Course Syllabus for the Information Society: Policies and Politics—STP 309, Fall 2003 Term, *available at* http://ksgnotes1.harvard.edu/degreeprog/courses.nsf/webnumber/STP309 (last visited Nov. 24, 2003).

3. *See* ITHIEL DE SOLA POOL, TECHNOLOGIES OF FREEDOM (1983).

to speak. It is the access to such a diverse range of information sources that gives the Internet its unique power.

But the Internet and the World Wide Web are also indiscriminate amplifiers of virtually any information. Whether the information is valid or not, the Internet faithfully transports it to web browsers, chat rooms, instant messaging clients, and streaming video receivers. It is this egalitarian character that makes the Internet a conundrum in practice. On the surface, one cannot draw any foregone conclusions about the information found on the Internet. One *can* use digital signatures to preserve and, if desired, identify the source of information on the Internet. But the accuracy is only as good as the binding of identity to an individual or source.

In this brief Essay, it is my intention to outline some of the implications of widespread access to and reliance on the Internet with respect to our American system of justice.

II.   THE TYRANNY OF INFRASTRUCTURE

When some system, service, or facility truly becomes a part of our infrastructure, we simply use it without thinking much about it until it stops working. Anyone who has experienced the inconvenience of an extended power outage or a long period of congestion on a normally uncongested highway will appreciate this thought. Infrastructure is simply something that is *there* to be relied upon implicitly. Of course, it doesn't really work that way. One has to work very hard to make sure that parts of our civil infrastructure actually function reliably.

The Internet is becoming such an infrastructure. While it is not exactly everywhere, it has penetrated our American society beyond 40–50% of American households and businesses to say nothing of university and college campuses, and primary and secondary schools. It has even become a factor in American political life. It is estimated that there are about 187 million users of the Internet in North America and about 650–700 million users worldwide.[4]

To the extent that any significant part of our system of justice relies on the operation of the Internet, any infirmities in the network, or the applications that rely on it, will be amplified and reflected by impairing that part of the justice system that relies on it. If we deliberately build

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4. CyberAtlas,   Population   Explosion!   (Sept.   22,   2003),   *at* http://cyberatlas.internet.com/big_picture/geographics/article/0,,5911_151151,00.html (data sources vary, but primarily Central Intelligence Agency's World Fact Book).

into the system the presumption of reliable operation, then it is incumbent on us to assure that we are not building on weak foundations. We must take pains to take into account any dependencies and to assure that there are alternatives if the Internet service is unavailable.

Accessibility is another aspect of dependence, and it too must be addressed. If the Internet plays a key role in the archiving and propagation of information in our system of justice, then it must be accessible to all who are seeking justice. *Access* means more than simply the ability to use a computer that is connected to the Internet—for example, at a public library. Access means the information is organized and presented in such a way that someone with a motor, vision, hearing, or other impairment that would inhibit convenient access to the Internet is accommodated. This could mean tools for voicing Web content and email, or captioning for audio segments that would be inaudible to a deaf person, or tools for simplifying mouse and keyboard interactions for persons with motor impairments. We have some considerable distance to go before the content of the Internet is uniformly accessible, but we can at the least insist that content critical to the justice system is as accessible as we can make it.

III. PRECISION AND RECALL

In the world of library science, there are two important search concepts: precision and recall. What one wants is information that is precisely what we are looking for and the assurance that we have found *all* the information that is precisely relevant to our search. Failure in either dimension produces incomplete or irrelevant information that is inimical to utility.

In a system of justice that depends heavily on precedent, searching for relevant prior decisions is utterly fundamental. To the extent that the Internet is becoming, or could become, a primary repository of information concerning court decisions at all levels, it is critically important to have search and indexing tools that produce highly precise and complete responses. Otherwise, we run a serious risk of basing our legal arguments on incomplete or weakly relevant positions. That we have such a risk today with the existing framework of indices and tools in the offline world does not excuse an ambition to offer better tools and results in the online world.

Indeed, using the tools of today's Internet, a competent attorney must *not* make the assumption that a casual Google[5] search is sufficient to obtain all relevant information. As good as the search engines may be today, they still fall far short of ideal. The information present on the Internet is still relatively unstructured and rendered less easily searched than one would like. Technology is on the way in the form of Extended Markup Language (XML) and the notion of the Semantic Web[6] that the author of the original World Wide Web, Tim Berners-Lee, is now pursuing. By properly annotating information stored on the Web, searching can be made to produce far more relevant and precise retrieval than has been possible with generally unstructured information.

Nor can one make any deep assumptions about the accuracy of information found on the Internet. One must take into account the sources of information, and even that can be a challenge because it is so easy to put misinformation onto the Internet or to mislabel its origins. The implication is that we need to take authentication far more seriously than we currently do. The use of digital signatures[7] and registration of cryptographic certificates can go a long way towards documenting the provenance of information on the Internet, but the infrastructure for such registration and subsequent use to validate the source and integrity of the information is still very immature.

Digital signature technology was first invented around 1977 by Martin Hellman and Whitfield Diffie, both then at Stanford University. They speculated on the existence of mathematical functions that would support the concept of two complementary cryptographic keys—one for encrypting and the other one for decrypting. That this notion sounds counterintuitive compared to systems in which the same key is used for both encrypting and decrypting is precisely why their contribution is so powerful. In essence, it is possible to use this two-key system to "sign" a digital object in such a way that everyone can verify the signature using a *public key*, but no one but the holder of the *secret key* can produce the signature.

Once one is provided with the public key for validating digitally signed information, one might wish to look up the key in a public directory to ascertain the source of the signature (and the guarantor of

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5. *See* http://www.google.com.

6. *See* Tim Berners-Lee, Semantic Web Road Map (1998), *available at* http://www.w3.org/DesignIssues/Semantic.html.

7. *See* Federal Information Processing Standards Publication 186 Digital Signature Standard (1994), *available at* http://www.itl.nist.gov/fipspubs/fip186.htm.

the validity of the information). Of course, one has to then be assured that the binding of the public key and its holder is accurate and has not itself been deliberately falsified!

IV. CRITICAL THINKING

No amount of technology will replace the value and importance of critical thinking. Any information obtained on the Internet through the World Wide Web, email, or many other information applications must be subject to critical thinking as to its accuracy, source, and validity. One must be aware of the many ways in which information might become corrupted or polluted in such an open environment as the Internet.

It was once the case that people thought that information printed in a book was likely to be true—why else would someone have gone to the trouble to print it? We know, of course, that people may well go to the trouble of printing books, newspapers, or magazines that carry misinformation—either by intent or simply by accident. It is so easy to put information onto the World Wide Web or to produce electronic mail for distribution on the Internet that one must be intensely aware of the potential for misinformation to be circulated in the system. Anyone who has received a strident email announcing some kind of virus that requires users to remove a particular piece of software from their personal computers will appreciate the power of hoaxes in the online world.

To make matters even more complicated, information that is placed on the Web with the best of intentions, and the highest quality and accuracy, can be polluted by hackers who break into the computers hosting the information and add, change, or delete critical parts of the information content. This extends to software as well and increases the risk of downloading a piece of "Trojan horse" software that may do what it advertises, but may also perform functions (such as sending all your passwords to a web site) that you do not wish to have done.

All of these hazards simply underscore the importance of thinking critically about any information received through the Internet *or through any other means* and taking pains to validate its source and accuracy.

V. EFFECTS OF BAD INFORMATION

Bad information propagates as fast or faster than good information. Anyone who has had an incorrect credit report or who has experienced identity theft can appreciate how quickly and deeply a misinformation infection can spread. Confusion as to the identity of a convicted felon,

whose name is not unique, can have devastating and lasting negative effects. Once information pollution has occurred, correcting the problem is not unlike trying to put toothpaste back into the tube through the small dispensing end! Incorrectly documented court decisions could have ripple effects throughout the justice system and these potential hazards must be guarded against and repaired rapidly if discovered.

It is sometimes said the antidote for bad information is not censorship but more information. The Internet offers a unique opportunity in the annals of communications for the rapid correction of misinformation. For the first time, it is possible to respond to bad information in the same medium in which it propagated, thereby allowing the correcting information to be found using the same searching tools that might discover the bad information.

Of course, some bad information may be put into the system with the deliberate intent to do harm. This is all the more difficult to deal with if the source of the misinformation is unknown. Anonymity is a valuable commodity under some circumstances, but it can be a serious barrier to the correction of bad information if the source is disguised. Plainly, there are circumstances in which anonymity is in fact quite important (e.g., whistle-blower laws), but it is fair to say that trust in the validity of information can be significantly enhanced if its source can be accurately identified.

VI. CONCLUSION

It should be readily apparent that to the extent that the Internet plays a key role in the archiving and propagation of information associated with our justice system, it is vital that this information be as accurate and complete as possible, that its origins be verifiable, and that the system in which this information is kept is as secure and reliably accessible as possible. The powerful tools at our disposal for the organization and propagation of information have the potential to improve the quality of our justice system and the practice of those who are responsible for the dispensation of justice. But, as this brief Essay suggests, these benefits will not come without significant effort to assure the integrity of the information provided and to assure that the system housing and delivering information is reliably available at need.