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Is the Environmental Movement a Critical Internet Technology?

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IS THE ENVIRONMENTAL MOVEMENT A CRITICAL INTERNET TECHNOLOGY?

HENRY H. PERRITT, JR.†

INTRODUCTION

THE original theme for the 1996 Villanova Environmental Law Journal symposium was, "Is the Internet a Critical Environmental Technology?" That theme contemplated an inquiry into whether new information technologies exemplified by the Internet and its World Wide Web could play a central role in the future of the environmental movement. However, that is only one way to look at the interaction between the Internet and the environmental movement. The Internet is an important social and economic phenomenon in its own right, and its developers may have something to learn from the experiences of the environmental movement. It is appropriate to turn the thematic question on its head, and ask, "Is the environmental movement a critical Internet technology?"¹

The Internet is a new kind of market. It is a new community - or collection of new communities. It has its own specialized political institutions. It can be an electronic town hall in which rules are made, or an electronic courthouse in which disputes are decided. Unlike traditional sovereign states which are tied to geographic boundaries,² the Internet is inherently global and indifferent to ge-

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1. Of course the environmental movement is not "technology" in a narrow sense. The human knowledge acquired from the environmental movement qualifies, however, in the sense that economists use the word "technology" when they are constructing production functions with labor and capital as the only independent variables.

2. See Montevideo Convention on the Rights and Duties of States of Dec. 26, 1933, 165 U.N.T.S. 19, Art 1 (stating "the state as a person of international law should possess the following qualifications: (a) a permanent population; (b) a

ographic political boundaries. Its international character facilitates the development and extension of international political and legal institutions.

The Internet is a revolutionary phenomenon. It is not just a technology, but a way of organizing and connecting human activity, which emphasizes decentralization, specialization and global cooperation. It is not merely a means for facilitating existing market and political institutions, but a way of redefining them altogether. The evolution of the Internet as a market, as a political entity, as a set of virtual legal institutions for national and international political and legal entities, can be shaped constructively by learning some lessons from the environmental movement.³

In particular, the environmental movement has much to teach in the following areas: with respect to the development of economic systems that permit growth while minimizing adverse byproducts; by understanding how new technologies can be diffused with appropriate speed, and conversely how their diffusion can be blocked by imperfections in markets and political systems. Environmental economics begins with the realization that environmental damage often is an "externality," a cost not counted in traditional market exchanges.⁴ Environmental regulation began with the proposition

defined territory; (c) government; and (d) capacity to enter into relations with other states."). See also RESTATEMENT (THIRD) OF FOREIGN RELATIONS § 201 (1987) (stating "[u]nder international law, a state is an entity that has a defined territory and a permanent population, under the control of its own government, and that engages in or has the capacity to engage in, formal relations with other such entities.").

3. This paper synthesizes other people's ideas. David R. Johnson has worked to persuade me and other skeptics, over almost a decade, of the virtues of computer based visualization to enhance legal and political decisionmaking. Most of the ideas for an automated Robert's Rules of Order are his. George Soros, by his conduct and words, has caused many people to think harder about constructive possibilities for improving markets and political systems in central and eastern Europe. Amory B. Lovins by his persistent advocacy of the technological benefits of the Hypercar, have focused attention on how markets and political institutions can work better to accommodate new technologies. David Brower has been a tireless builder of public interest institutions, a practical promoter of public involvement in public issues, and a mobilizer of the energies of young people in public affairs. Stuart R. Ingis encouraged me to think boldly about this subject and helped me find the common threads among the diverse contributions drawn from in this paper.

4. See Eric W. Orts, *Reflexive Environmental Law*, 89 Nw. U.L. Rev. 1227, 1242 (1995). Orts states that: [t]he starting point for economic approaches to environmental problems is to conceive detrimental environmental effects as 'externalities.' Harmful environmental effects are called externalities because the 'internal' economic calculations of polluters do not incorporate 'external' costs of environmental damage in the absence of regulatory intervention." *Id.*

that such externalities represent a market imperfection that must be remedied for the market to allocate resources efficiently.⁵

The Environmental Movement pioneered mass political movements to protect the environment. The Internet can teach how such movements were launched and shaped, and how those experiences can be adapted to steer mass movements toward freedom and choice rather than ethnic hatred.

We can, as we stand on the shores of the new Millennium, dimly perceive a new world. This is a world in which world markets operate instantly to afford a choice among every single producer of a good or service, one in which tomorrow's Hypercar is popularized and purchased through World Wide Web advertising and salesrooms. In this world, new monetary systems operate through cybermoney on the Internet, potentially freeing capital markets. Such markets create new interdependencies, in which the costs of war and social unrest are greater. Economics always drives politics, and the same technologies that make markets more efficient also can make democracy more general.

This is a world in which constitutional conventions for Europe and the former Yugoslavia take place on the Internet, benefiting from the lessons learned in building the Sierra Club and Friends of the Earth. This is a world in which the constitutional courts in the new countries of central and eastern Europe and the Balkans build stronger federal systems by managing cases and deliberating through virtual court software on the Internet. This is a world in which new ombudsmen can protect against national violations of internationally recognized human rights by mobilizing World opinion. This is a world in which new forms of participatory democracy use the Internet and new visualization software to form political majorities around practical policy initiatives.

But many questions remain: will the new market structures really reduce barriers to entry, leading to greater competition and choice, or will only large enterprises with deep pockets survive? Will consumer fraud be manageable? Will intellectual property be able to be protected? Will transaction costs really be reduced, and will this reduce the need for legal regulation? Who will play intermediary roles in the new political structures? Will the decentralized nature of the Internet lead to more democratic choice, or will it lead to anarchy and virtual terrorism? How can the new tools and

5. *Id.* ("economists aim to artificially structure the market to take the external costs into account").

virtual spaces be used effectively to organize mass opinion and to crystallize constructive choices?

The vision can be understood more clearly, the questions made more concrete, and the lessons from the Environmental Movement learned more thoroughly by considering three scenarios. Moving from first to third represents movement from the narrowest view of the Internet as merely a collection of information technologies to a broader view of the Internet as exemplary of a new type of human community. It also represents movement from the most immediate to the most revolutionary applications of the Internet.

The first scenario, (Public Institutions Scenario) possible today, involves using the Internet as a means to make existing public institutions more effective. It envisions relatively narrow legal and civic applications of the Internet, for example making the court systems more effective. This scenario permits understanding the power of information technologies to facilitate law enforcement and judging, while also revealing the practical difficulties of jurisdiction and decision enforcement in an international context, regardless of the technology used. The first scenario already is well developed in the United States and Western Europe, and has begun irreversibly in Bosnia.

The second scenario (Market Scenario) involves use of the Internet as a market: a product market in which new technologies embodied in new products could be sold to a world market. This scenario permits not only exploration of the difficulties in gaining acceptance of the certain products but also permits thinking about the new potential and problems arising from relaxing the previously inevitable geographic confinements of markets. The Market Scenario also encompasses a financial market to facilitate the development of new kinds of money, monetary policy management and payment systems. This scenario relates to the development of a Eurocurrency and other regional or international financial mechanisms. This scenario is widely recognized and expected, but has only just been born, awaiting more certain experience about consumer and producer preferences among a variety of presently feasible technologies for organizing exchange, such as payment media, security, privacy and merchandising.

But the Internet is not only a market mechanism; it is the ultimate civic tool. The third, most revolutionary, scenario (Political Interaction Scenario) involves the Internet to reorganize political interaction. It could encompass constitutional conventions, legisla-

tive process and elections. In this scenario, the aspirations of George Soros⁶ for an open society and the experiences of David Brower⁷ in mobilizing ordinary people can converge.

In each of these scenarios, it is possible to sketch a broad vision framing the possibilities the scenario represents. Then, one can identify questions about how the scenario may develop, seeking answers from the experience of the environmental movement. Finally, one can suggest some concrete opportunities to test the scenario and refine the questions and answers.

In a broad sense, all of these scenarios explore the Internet as a medium for new forms of international law. They exemplify channels and structures for regional and global cooperation. In that sense, they sketch possible directions for the evolution of existing international institutions such as the International Monetary Fund, the World Bank, the World Trade Organization, the International Court of Justice, the Organization for Security and Cooperation in Europe, NAFTA, and the Human Rights Court. All of these institutions exist now, and all strengthen the force of international law. The Internet, by relaxing the strictures of time and space, can facilitate their development.

In all three scenarios, this Article relies on two concrete examples: the Hypercar, proposed by Amory B. Lovins, another participant in this symposium; and new political institutions erected in Bosnia-Herzegovina in an effort to preserve peace in the former Yugoslavia. The Hypercar, because of its apparent technical superiority, provides an opportunity to understand imperfections in markets and political systems because it has not been widely accepted. Bosnia-Herzegovina provides an opportunity to study the implications of new political structures in a part of the world in which old structures have collapsed.⁸ It also is a country in which I have recent experience "on the ground" in using the Internet as an engine

6. George Soros is a successful businessman and leading promoter of open societies in central and eastern Europe, having given millions of dollars through his foundations to create legal systems and organize free media. George Soros created, among other things, the Open Society Institute, the cornerstone of a self-styled "family" of private foundations which has set up over fifty offices throughout Eastern Europe, South Africa and Haiti to support a variety of educational, cultural and economic restructuring activities.

7. David Brower organized the Sierra Club, Friends of the Earth and the Earth Island Institute. He is generally regarded as one of the fathers of the environmental movement.

8. See SUSAN L. WOODWARD, *BALKAN TRAGEDY: CHAOS AND DISSOLUTION AFTER THE COLD WAR* (1995) (discussing the former Yugoslavia).

of fundamental legal reform.⁹ In addition, this Article refers often to the work of David Brower, one of the fathers of the environmental movement, and another symposium participant; and to the work of George Soros, who has supported rebuilding of political and economic institutions in Eastern and Central Europe, often with reliance on the Internet.

The Internet, as is obvious by now, is the central thread of this essay; it is now fairly well known, though frequently misunderstood. The Internet is an international network of computers and computer networks connected to each other, sharing a common name and address space.¹⁰ One can communicate with any computer connected to the Internet simply by establishing a connection to one other computer connected to the Internet. Thus, the Internet is not a corporation or administrative arrangement; it is a method for connecting computer systems, and the phenomenon of very widespread adherence to that method. There is no such thing as a president or board of directors of the Internet. The Internet's private, cooperative, virtual and decentralized character make it a tantalizing model for organizing other forms of human activity through technology.

VIRTUAL OMBUDSMEN AND VIRTUAL COURTS

The Public Institution Scenario involves using the Internet as a means to make existing public institutions more effective. It envisions relatively narrow legal and civic applications of the Internet, but ones that currently exist and are ready to connect existing institutions.

Using the Internet to make the Ombudsman system or the Constitutional Court in Bosnia-Herzegovina more effective has implications beyond simple improvements in efficiency, showing how world opinion can become a practicable enforcement method in legal systems. The results may have implications far broader than these particular institutions. They may show how public opinion now can be a much more effective weapon in the arsenal of law enforcement because of easier access to underlying legal decisions and the empowerment of a decentralized web of specialists around

9. For the background and status of Project Bosnia, see <http://www.law.vill.edu/vcilp/bosnia>. See also PROJECT BOSNIA: REBUILDING THE LEGAL INFRASTRUCTURE (pamphlet on file with author); Reid Kanaley, *Raising Bosnia's Internet Access*, THE PHILADELPHIA INQUIRER, July 18, 1996, at F1; Celestine M. Erwin, Villanova, *Firms Join to Aid Bosnia*, THE LEGAL INTELLIGENCER, May 31, 1996, at 1.

10. See BILL GATES, THE ROAD AHEAD 3-4 (1995).

the world to direct the attention of various constituencies to data, and to explain significance.

This scenario also reveals the growing importance of new types of international law typified by the human rights movement, which grants rights to individuals through international rather than domestic sources of law, relying on a yet incomplete collection of new legal institutions such as the Bosnian Ombudsman to enforce the new rights. This use of public opinion as a tool of political action and law enforcement can benefit from the successes of the Sierra Club, Friends of the Earth and the Earth Island Institute.

Conversely, using the Internet to provide a virtual courtroom and courthouse for the proposed international criminal court, a precursor of which now exists in limited form as the international criminal tribunal to prosecute war crimes in the former Yugoslavia and Rwanda, illustrates what near-term applications of Internet technology cannot do.

Analysis of the Public Institution scenario can begin with the Bosnian Ombudsman. The Bosnian Ombudsman is a creature of the Dayton Accords,¹¹ and is the central feature of a rule of law with respect to human rights. Someone alleging a human rights violation may file a complaint with an ombudsman, triggering the ombudsman's duty to investigate. If settlement is achieved the ombudsman's job is complete. If it is not achieved, the ombudsman then can follow two courses of action. The ombudsman may publicize the human rights violation, seeking to mobilize domestic and world opinion to induce the offending governmental entity through political means to resolve the dispute and to mend its ways. The ombudsman may file a formal case with the court of human rights - an institution which is not yet functioning at either the federation or state levels. Inherent in the ombudsman tradition and nomenclature is the idea that informal means, particularly including public opinion, can be an effective alternative to more traditional and formal court judgments and coercive enforcement and execution of them.

That is where the Internet comes in as a startlingly effective new tool for mobilizing public opinion. A finding of a human

11. See Dayton Peace Agreement, Nov. 21, 1995, 35 I.L.M. 75 (1996); also located at <http://www.unm.edu/ww/vuksan/mario/degreespeace2.html>. A similar office was established under the constitution for the Federation of Bosnia-Herzegovina, Part B, which bridges differences between Croat and Muslim nationalities within Bosnia. This is the second new constitution to be negotiated. The first, as amended, now serves as the constitution of the Federation which forms one-half of the Republic.

rights violation by the military police in Sarajevo or by irregular municipal police in Banja Luka can be made available to the world community simply by transferring one file to a computer in Bosnia, as long as that computer is connected to the Internet. More extensively, the vast network of interested nongovernmental organizations and human rights advocates around the world can focus public attention by adding their own indexes, and analytical frameworks to raw material developed and published by the ombudsman. In this application, language translations no longer require resources in the Office of Ombudsman itself. The basic findings can be posted in the native language of the ombudsman with anyone else located anywhere in the world performing the translation function through the World Wide Web.

Using the Internet in this fashion does not require any change in the formal organic or procedural documents for the Office of Ombudsman. All that is necessary is to provide the necessary hardware, Internet connectivity and training to the ombudsman and then let the world community, particularly the human rights community, know about the new source of information on human rights violations.

But the Internet has its limits. For example, using the Internet to automate the Hague war crimes tribunal is advantageous, but the Internet cannot solve the most serious problems confronting the Tribunal. The international tribunals for the prosecution of war crimes in the former Yugoslavia and Rwanda ("War Crimes Tribunals") is a limited model for an international criminal court but it enjoys growing support in the international law community.¹² The

12. International Tribunal for Prosecution of Persons Responsible for Serious Violations of International Humanitarian Law Committed in the Territory of the Former Yugoslavia, By SC Res. 827 (May 25, 1993), *reprinted in* 32 I.L.M. 1203 (1993). The Security Council adopted the Statute of the Tribunal, UN Doc. S/25704, annex (1993), *reprinted in* 32 I.L.M. at 1192; International Tribunal for Rwanda, By Statute of the International Tribunal for Rwanda, annexed to SC Res. 955, U.N. SCOR, 49th Year, 3453 Mtg, at 1, U.N. Doc. S/Res/955 (1994).

For international commentary of these tribunals, *see generally* James C. O'Brien, *The International Tribunal for Violations of International Humanitarian Law in the Former Yugoslavia*, 87 AM. J. INT'L L. 639 (1993); Christopher Greenwood, *The International Tribunal for the Former Yugoslavia*, 69 INT'L AFF. 641 (1993); Theodor Meron, *War Crimes in Yugoslavia and the Development of International Law*, 88 AM. J. INT'L L. 78 (1994); L.C. Green, *Enforcement of the Law in International and Non-International Conflicts—The Way Ahead*, 24 DENV. J. INT'L L. & POL'Y 285 (1996); Judith G. Gardam, *Legal Restraints on Security Council Military Enforcement Action*, 17 MICH. J. INT'L L. 285 (1996); Mariann Meier Wang, *The International Tribunal for Rwanda: Opportunities for Clarifications, Opportunities for Impact*, 27 COLUM. HUM. RTS. L. REV. 177 (1995); Paul John Chrisopoulos, *Giving Meaning to the Term "Genocide" as it Applies to U.S. Immigration Policy*, 17 LOY. L.A. INT'L & COMP. L.J. 925 (1995); Mark S. Martins, *"War Crimes" During Operations Other Than War: Military Doctrine and Law*

Internet's virtual court capability can automate the functions of such a court. As with the constitutional court in Bosnia, which has been the subject of efforts to automate its functions through the Internet, the Internet and World Wide Web links can enable justices sitting in different countries to deliberate, can facilitate the acceptance and transfer within the court of documents pertinent to cases, and can provide for instant publication of court orders and opinions.

Nevertheless, the Public Institution scenario indicates the limitations of technology. The Internet can do little to ensure that executive instrumentality's such as the police and UN forces such as IFOR in Bosnia execute arrest warrants issued by an international criminal tribunal.¹³ It can do little to overcome the power of those that provide sanctuary or otherwise prevent the apprehension of an international fugitive. On the other hand, in a more general and indirect way, the Internet's capabilities as a virtual court can strengthen the functioning of international institutions, thereby increasing the perceived legitimacy and the likelihood that national authorities will cooperate in their functioning.

The experiences of the environmental movement in organizing economic, technical and legal data for the public can produce lessons for the first scenario. For example, the Center for International Environmental Law and the American University School of Law are implementing an environmental laws database project, which publishes environmental laws and regulations on the Internet's World Wide Web, thus facilitating their availability as models. Someone drafting a new toxic substances law in Bosnia-Herzegovina could have access to the law on a similar subject from Belgium or California. If translation is necessary, it could be provided by anyone with access to the Internet.

The techniques used for these specialized environmental systems are the same ones used to generally link legal institutions to the World Community. They illustrate how a legal text can be made available everywhere by posting it anywhere.

Fifty Years After Nuremburg—and Beyond, 149 MIL. L. REV. 145 (1995); Laura Lopez, *Uncivil Wars: The Challenge of Applying International Humanitarian Law to Internal Armed Conflicts*, 69 N.Y.U.L. REV. 916 (1994).

13. Of course information technologies can play some role in that enforcement process, for example by improving the efficiency with which writs of execution and warrants of arrest are managed.

THE INTERNET AS A MARKET

The Internet is not only a place in which disputes can be resolved and the law enforced; it is also a market. The Internet can be a product market in which new technologies embodied in new products can be sold to a world market. It can be a financial market for flows of new kinds of money, monetary policy management and payment systems.

The Market Scenario considers the effects of reducing all kinds of transaction costs for trade. Bill Gates writes that he launched the PC revolution as a response to the question "What if computing were nearly free?" and has embraced the Internet as a response to the question "What if communicating were almost free?"¹⁴ When the Internet is a market, one asks "What if transportation were free?" Of course neither computing nor communication nor transportation can ever be completely free, and Bill Gates knows that. But the Internet does radically change transaction costs for most of the activities that occur in markets—advertising and promotion, shopping, sales transactions, production and delivery (of certain services and information products).

Ronald Coase and many others¹⁵ observed that changes in transaction costs alter the organization of economic activities. Depending on relative transaction costs, coordination of economic activities may be performed by bureaucratic mechanisms of firms, or outside of those mechanisms by markets. Coase argued that the role of law in regulating markets should be determined by the nature of transaction costs.¹⁶

Geography always has been a source of cost in organizing production and distribution, but the Internet changes that. Now, geography is essentially irrelevant. All markets are global. The marginal cost of delivering a byte halfway around the world is close to zero.

What are the implications of making every market global? Does it inexorably lead to better consumer choice and more efficient organization of production based on comparative advantages other than geography? Or does it undermine labor standards won over a century or more? Will spam—unsolicited mass mail-

14. See GATES, *supra* note 10, at 18.

15. See R. H. Coase, THE FIRM, THE MARKET AND THE LAW 174-79 (1988); Gregory Scott Crespi, *The Mid-Life Crisis of the Law and Economics Movement: Confronting the Problems of Nonfalsifiability and Normative Bias*, 67 NOTRE DAME L. REV. 231 (1991); Jason Scott Johnston, *The Influence of the Nature of the Firm on the Theory of Corporate Law*, 18 J. CORP. L. 213, 214-16 (1993).

16. Coase, *supra* note 15, at 114-19.

ings—overwhelm consumers, thus negating the potential for effective advertising communication? Do such new markets make it easier for perpetrators of consumer fraud to hit, run and hide, or will it make it easier to catch them, to prove the case against them, and to block their lies? Do the new technologies and possibilities for organizing trade enhance the value of intellectual property or make it easier for pirates to operate?

Will new possibilities for payment, cybermoney, worldwide instant credit card transactions and fingertip funds transfers, facilitate efficient allocation of capital, or will they destabilize monetary institutions carefully worked out over more than a century?

Over the past few decades, environmental science and the Environmental Movement have focused attention on market imperfections. Pollution occurs because it is an externality—a transaction cost—not reflected in production costs or prices.

Using the Internet to organize markets interacts with the environmental movement in two respects. First, market improvements made possible by the Internet may facilitate adoption of less-polluting product alternatives such as the Hypercar. Second, the Internet can lower the costs of information relevant to decisions in markets and about markets.

The Hypercar is a complete redesign of the automobile, using new structural, materials and propulsion technologies, integrated with careful design to aerodynamic drag and energy efficiency.¹⁷ The basic design of the Hypercar suggests that consumer choice in a market without imperfections would result in the Hypercar supplanting conventional vehicles.¹⁸ While a complete assessment of the imperfections in product markets and political systems is beyond the scope of this paper, it is reasonable to conclude that entirely new market structures, made possible by the Internet, could reduce some of the imperfections that have blunted public realization of the benefits of the Hypercar. Hypercars, unlike computer programs or information services, cannot be delivered through the Internet. But they can be advertised, compared with alternatives, bought, sold, guaranteed and serviced, in many cases, through the Internet. What would it be like if the constraints represented by the existing capital embedded in automobile plants, existing inventories, existing distribution systems, existing advertising and sales systems were relaxed? Promotion of the Hypercar thus provides an

17. Amory Lovins, *Hypercars: Answers to Frequently Asked Questions*, Rocky Mountain Institute, Pub. # T95-1, January 1995, at 1-3.

18. *Id.*

opportunity not only to avoid institutional resistance to the Hypercar but also to explore the limits of the Internet as a market for tangible products.¹⁹

The Internet improves market-related decisions by lowering the costs of market information. The Internet facilitates modeling and visualization of environmental impact on a multinational basis. Such efforts improve information available to market decisionmakers, and thus improve market function. Tools could be made available through the Internet to interact with data made available from multiple sources through the Internet with the results made available through the same medium. The OMB Watch/EPA Toxic Release Inventory initiative is a sound beginning for this application. Graphical models and visualization techniques can be developed more cheaply and delivered into broader markets by ensuring their compatibility with open Internet and World Wide Web standards.

Whatever the limits of the Internet as a market for tangible products such as the Hypercar, they do not apply to financial and capital markets in the Market Scenario. Money *can* be delivered through the Internet. One of the great accomplishments of post World War II international diplomacy and law has been the design and operation of international financial institutions to moderate the effects of exchange rate fluctuations, to manage payments deficits, and to facilitate the handling of payments for commercial and governmental purposes that cross national boundaries. The International Monetary Fund, the World Bank, the European Bank for Reconstruction and Development, emerging Eurocurrency mechanisms, and elaborate, but less known, private banking settlement networks handle trillions of dollars in international monetary exchanges very effectively. Information technology always has been important to payment systems. Already, much of the world's payments are reflected not by the physical exchange of a gold coin or a paper bank note, but by simple transfers of balance adjustments in computer databases.

Now, the Internet and the World Wide Web are about to take off as consumer marketplaces. Merchants and customers are refining their preferences among a variety of recently available on-line credit card and cybercash payment systems. Credit card and cyber-

19. One can be skeptical about the feasibility of selling consumer capital goods such as automobiles on the Internet. Nevertheless, one of the largest national realtors currently allows those shopping for a new home to do so over the Internet. See <http://www.coldwellbanker.com>.

cash payments through the Internet raise a variety of interesting, but manageable, legal issues and some more profound policy questions with regard to banking regulation.²⁰ Regional and global payment mechanisms are essential to the stabilization of politics and diplomacy on regional and international levels.²¹ Improvements and extensions in the flow of money permit the extension of commercial interdependence, which in turn creates disincentives to warfare, violence and destruction. Furtherance of an Internet-based worldwide payment system extends trade and other economic interdependencies that already promote constructive behavior in a world community.

Healthy markets are inseparable from healthy political systems. That proposition was the motivating force behind establishment of the European Economic Community, the World Bank and the International Monetary Fund, three of the most successful international governance structures now in existence. Using the Internet as a new market to facilitate trade across political boundaries raises the costs of political disruption of those trade flows, and thus is an incentive to peaceful resolution of international political disputes. Not only that, healthy energy markets can radically alter strategic interests, thus defusing tensions centered on the Middle East.²² The Market Scenario is thus inseparable from the Political Interaction Scenario.

NEW POLITICAL INTERMEDIARIES: CONSTITUTIONAL CONVENTIONS AND ELECTRONIC ELECTION

Technology is not enough. Advocates of the Hypercar assume that compelling technology is enough; they make heroic assumptions about the interaction between technology and existing social, political and economic structures. While acknowledging that widespread acceptance of the Hypercar would virtually negate the value of huge investment in existing automobile manufacturing technologies and significantly diminish the demand for gasoline,²³ they simply assume that widespread consumer acceptance will occur.

20. See Henry H. Perritt, Jr., *Legal and Technological Infrastructures for Electronic Payment Systems*, 22 RUTGERS COMPUTER & TECH. L. J. 1 (1996) (analyzing ways to facilitate commerce with electronic payment systems).

21. See George Soros, *Can Europe Work? A Plan to Rescue the Union*, 75 FOREIGN AFF. 8 (Sept./Oct. 1996) (discussing importance of common European currency, proposal for constitutional convention and need to stabilize European economy).

22. See Joseph J. Romm & Amory B. Lovins, *Fueling a Competitive Economy*, 72 FOREIGN AFF. 46 (1992) (urging energy efficiency in transportation as way of reducing dependence on foreign oil).

23. *Id.*

Actually, the empirical evidence is to the contrary, at least with respect to consumer preferences for fuel efficiency. The trend toward fuel inefficient utility vehicles is apparent. Empirical evidence also suggests that consumers will not respond well when confronted with giving up conveniences like air conditioning, as they would be compelled to do if they accept the Hypercar.

These are not criticisms of the Hypercar technology. I believe the Hypercar is a compelling technological vision. Rather, the Hypercar provides an opportunity to think hard in a variety of technology contexts, including the Internet, about social and political interactions, and to explore the possibilities for developing new kinds of institutions.

Such rethinking of institutional arrangements concerns both markets and democracy. New information technologies can improve the functioning of markets, as suggested in the description of scenario two; it also can facilitate development of new techniques for public expression.²⁴

The third, most revolutionary, scenario involves the Internet to reorganize political interaction. In the Political Interaction Scenario, the Internet can become the place for a virtual constitutional convention for Europe, as has been suggested by George Soros,²⁵ or for countries in the Balkans which are struggling to find new ways to allow national and ethnic autonomy while also protecting minorities and achieving economic viability. In this scenario, deliberative processes in legislatures can be transformed by organizing the deliberations through the Internet, thus removing the restrictions of time and space. Voting, especially in locations such as Bosnia, where physical freedom of movement is a problem, can occur through the Internet. In this scenario, the aspirations of George Soros for an open society and the experiences of David Brower in mobilizing ordinary people can converge.

Human beings have been building political institutions, struggling to accommodate competing human aspirations, and to resolve disputes for thousands of years. What they have learned in the course of their development about political and legal processes is not swept away by the introduction of the Internet or any other

24. See Lovins, *supra* note 17, at 1-3 (evaluating possibilities that Internet would permit improvements in political "marketplace" by reducing transaction costs for democratic mass action favoring the Hypercar).

25. See Soros, *supra* note 21, at 13-14. To cure the trend toward disintegration in Europe, Soros provides a suggestion that "[t]he Inter-Governmental Conference should convene a Constitutional Assembly; the people of Europe should be mobilized to bring that about." *Id.*

technology. Political theory and rules of thumb for shaping legal institutions have not suddenly become irrelevant. Rather, the mature student asks simply whether different, and perhaps better, answers to age-old questions are now possible because of specific changes in cost, immediacy and long distance participation—changes wrought by the Internet and related technologies. It is that mode of analysis that the Political Interaction Scenario is meant to encourage.

Political intermediation in complex societies is a source of challenge. That has been true for several thousand years as Plato, Aristotle, Rousseau, Locke, and a host of other political philosophers have struggled to define institutional structures and political and legal process to determine the boundaries of public consent and the public interest. The Internet threatens existing mechanisms of intermediation, but it also can be a source of new forms of intermediation. It thus should stimulate new inquiries into how mass opinion can be best translated into political decisions and action.

The Internet threatens existing political intermediaries because it provides new channels between sources of information and ordinary members of the public. No longer must a citizen depend on a newspaper or a television network to learn about a president's latest announcement, the citizen can get the announcement directly and immediately from the White House World Wide Web site. No longer must a lawyer wait for legal publishers to make the text of a new legislative act available; the lawyer may get it immediately and directly from the Thomas World Wide Web site at the United States Congress. No longer must the process of galvanizing public support for new political initiatives through the electoral process depend on political parties and speeches by candidates at rallies or expensive political advertising on television; now not only the candidates, but also affected interests can mobilize their past and future constituencies through the World Wide Web and e-mail.

No longer can totalitarian regimes or plotters of military coups ensure themselves a safe environment by controlling the newspapers and the television stations. As the collapse of the Soviet empire, the failure of the military coup in Russia, and the siege of Sarajevo showed, the word leaks out through e-mail and the Internet regardless of what is on state television or the front page of the party newspaper.

Some observers infer from these propositions that political intermediation is dead, and that the Internet is launching a new

world in which town hall mass democracy will be the only form of governance for the entire world. Such an inference is naive in the extreme. All the Internet does is make it possible for people to be "present" virtually without having to be present physically. It does little by itself to shape group dynamics in desirable directions, or to make large assemblies more capable of dealing with a vast array of issues, some of which interests some members of the assembly and others of which are matters of passion only for different members of the assembly. The imperatives of specialization and delegation will continue to operate in the new technological environments as well as in the old. Town hall democracy is not always effective, regardless of the technology used.

What we need is more, not less, hard thinking about political intermediation. What will the press function look like when governments and political opponents can make their views available directly to the public on the Internet, when reporters can publish their stories directly to the public without sending them through editors, when the World Wide Web performs the printing, sorting, binding and distribution functions which have almost zero cost, thereby ensuring that it will eventually supplant the printing press, the folder, the binder and the delivery truck? What happens to the function of the story conference, the make up editor, and the editor at the daily newspaper? What happens to the role of the television network anchor person as someone who sorts a thousand events and tells us what we want to pay attention to and helps us understand them?

Demand for these intermediation functions will not evaporate.²⁶ It is unclear, however, exactly how they will be organized and performed in the new technology, although it is clear that the World Wide Web, as an exemplar of the Internet's open architecture and distributed organization, facilitates many different intermediaries working from the same basic information.

What will interest groups, political parties and personal election campaign organizations look like under the influence of the Internet and the World Wide Web? Will reduced costs for launching political movements make more Sierra Clubs, Friends of the Earth and Common Causes spring into life, or will it result in so many narrowly focused, uncompromising specialized interest groups-as in the 44 political parties and the initial run up to Bosnian elections - that it frustrates rather than facilitating choice.

26. See ROBERT A. DAHL, *DILEMMAS OF PLURALIST DEMOCRACY: AUTONOMY VS. CONTROL*, 16-30 (1982) (discussing political autonomy and control).

What new tools can be developed in the new political environments to facilitate public understanding and public participation in formulating issues and choosing alternatives? It now appears feasible to develop widely available software applications that would operate through the World Wide Web and therefore be available to everyone that represent proposals for new rules by graphical objects on a computer screen, dynamically changing their shape or color to represent growing or diminishing public support for them, also representing proposed amendments and organizing public comment and debate on each proposal. One could loosely describe such an application as a kind of automated and self enforcing Robert's Rules of Order. As such, it could facilitate the democratic decisionmaking process in private organizations such as interest groups or political parties, in conventional legislatures or agency rulemaking proceedings, or in political party or constitutional conventions.

As a new tool of political intermediation, it could operate on multiple levels, facilitating the deliberations of a committee or subcommittee and then reporting the results to a higher level assembly. It thus does not ignore the realistic benefits or specialization and delegation-unlike other Internet-based visions for political reform.

But, so what? Unlike the relatively modest step of using the Internet to facilitate the ombudsman process previously discussed use of the Internet, the World Wide Web and e-mail as a new form of political intermediation is revolutionary in its implications. Where can this be tried, and tested against realities of resistance to radically new methods of governance, and the inherent and tidiness of politics? There are at least two relatively near term possibilities. One arises from George Soros's proposal for a constitutional convention in Europe aimed at strengthening the legitimacy of European political institutions by tying them to the people rather than to bureaucrats.²⁷ The second is the now-rescheduled municipal elections in Bosnia-Herzegovina.

Mr. Soros, well known for his interest not only in facilitating an open society, but also in using modern information technologies, could take the next step toward realization of his proposal for a European constitutional convention by organizing an Internet based convention, making maximum use of new visualization and

27. See Soros, *supra* note 21, at 14 (stating that "the Constitutional Assembly would be able to resolve the problems the Inter-Governmental Conference *cannot* resolve, and engage the people of Europe in the process.").

deliberation software such as that described. Pragmatically, it might not yet be possible to gain acceptance from European governmental institutions, and national governments in Europe to do the entire convention process through the Internet, but it surely would be possible to take certain preliminary steps through the Internet. For example, issues could be debated, and delegates selected, through the Internet even if convention delegates would meet face to face at least at some point. Moreover, preparation of papers and draft constitutional materials, their revision, circulation and consideration could be considerably facilitated by intelligent use of the Internet and the World Wide Web and web-based discussion groups even if the ultimate vote takes place in a live assembly.

The municipal-election application in Bosnia is somewhat different from the constitutional convention application. In an election campaign, group deliberation is less in the forefront and voting more, than in a legislative assembly. Nevertheless, the functions of formulating initiatives, advocating particular outcomes, deliberation and voting take place both in elections and in the legislative process. In fledging democracies, with immature party organizations and political journalism, a multiplicity of relatively unknown candidates can overwhelm constituencies' ability to absorb information, identify the implications of different choices and thereby to vote meaningfully. The Internet, by making it cheaper and easier for basic information provided by candidates to be made available to everyone, and for various intermediaries to organize and process and evaluate the information offers the potential-but only the potential-to improve the signal to noise ratio in a new democracy's first few elections. Visualization and deliberation software such as that described can help candidates and the electorate realize the potential to a greater degree. For example, one can envision a Web-based application that would represent each candidate by an object, the color, shape or size of which would change as support measured by opinion surveys waxes and wanes, past histories of whom would be made available through hypertext links to the candidate object, and in which public statements could be made available by candidates through similar hypertext linking. Critics of candidates also could organize their criticism and make it available through hypertext links from the basic candidate object-probably the author rather than the target.

Both of these suggestions, are obviously quite novel. They might not be as effective as suggested. Indeed, one reason for trying them is to learn more about what works and what does not work

in the new Internet environment for politics and political intermediation. But the proposals are not entirely fanciful. George Soros has stated the goal of a European constitutional convention, and he has demonstrated his willingness and capacity to support Internet-based initiatives to improve existing political institutions and to develop new ones. He therefore has it within his power to take the first step or two towards testing the virtual convention idea.

In Bosnia, the OSCE, responsible for the elections and for figuring out what to do with respect to the postponed municipal elections, already has used the Internet and the World Wide Web successfully to register thousands of absentee voters for the Bosnia elections. It would thus, not be a disruptive move for the OSCE to extend its web-based democratic election initiative into the actual campaigning and voting process itself. No doubt, the virtual election technique would be used on a selective basis but it should be used to some extent when the municipal elections are held. In that context, it could offer significant advantages, providing one more alternative to displaced electors, thus mitigating remaining impediments to freedom of movement. It can reduce election fraud by permitting more certain authentication of voter identity. It can expand political and diplomatic options by permitting elections to be held and postponing consideration of various protests against the conditions preceding and surrounding the elections.

The environmental movement is a dramatic example of facilitating interest group growth and mass political action. Environmental damage is a classic distributed cost, as to which, political theory teaches, effective political action is difficult to mobilize.²⁸ Environmental protection is a classic public good, which economics and political science teach is difficult to support. The environmental movement and its leaders such as David Brower overcame those difficulties with effective organization, leading to the Sierra Club, Friends of the Earth and the Earth Island Institute. Mass communication technologies such as the Internet already are widely recognized as important political tools in the environmental community. They reduce the transaction costs of discovering common concerns, crystallizing positions, aggregating interest and organization entrepreneurship and maintenance. In other words, the Internet facilitates political action. The literature of collective action²⁹ and

28. See DAHL, *supra* note 26, at 134. When discussing redistribution of wealth and income, Dahl states: that "if the distribution of incomes is itself unjust, then all the theoretical marvels of modern economics cannot undo the injustice." *Id.*

29. See MANCUR OLSON, *THE LOGIC OF COLLECTIVE ACTION PUBLIC GOODS AND THE THEORY OF GROUPS* 6 (1965).

of public choice³⁰ emphasizes the role that transaction costs play in developing interest groups and therefore the role they play in determining which political views and interest get presented effectively. Internet technologies change the transaction costs.³¹

CONCLUSION

The Internet is part of a revolution that is sweeping away old political and economic structures. The revolution can produce a world in which new ombudsmen protect against national violations of internationally recognized human rights by mobilizing World opinion. The revolution may produce a world in which world markets operate instantly to afford a choice among every single producer of a good or service, paid for through new cybermoney systems on the Internet. It may produce a world in which mass democracy becomes a reality while avoiding the curses of ethnic cleansing, benefiting from the lessons learned in building the Sierra Club and Friends of the Earth.

The revolution's work is most visible in Eastern and Central Europe, where the end of the bipolar world order presents some acute challenges. In revolutionary times, even more than in ordinary times, in that region, and even more than elsewhere, it is essential to think about the new order.

This is not the world's first revolution of course. Another great revolution shaped the Twentieth Century: the environmental revolution. The environmental revolution taught much about market imperfections and how to overcome them, about mobilization of the public interest in the political arena. Those lessons can inform the quest for a sound outcome of the new Internet revolution, building a sturdy bridge to the new Millennium.

30. See JAMES BUCHANAN, *ESSAYS ON THE POLITICAL ECONOMY* 13-24 (1989) (this is chapter 2 entitled "The Public Choice Perspective").

31. See OLSON, *supra* note 29, at 6.