

Pole Star:



Human Rights in the Information Society

BY DEBORAH HURLEY



Rights & Democracy

International Centre for Human Rights
and Democratic Development

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Rights & Democracy

International Centre for Human Rights
and Democratic Development

Suite 1100, 1001 de Maisonneuve Blvd. East
Montréal (Québec) H2L 4P9 Canada
Tel.: (514) 283-6073 Fax.: (514) 283-3792
E-mail: ichrdd@ichrdd.ca
Web site: www.ichrdd.ca

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Rights & Democracy took the initiative, on the occasion of the World Summit on the Information Society, to commission an essay on human rights and the information society.

The World Summit on the Information Society (WSIS) is an expression of valuable opportunity for global dialogue on subjects of universal concern. The first WSIS will be held in Geneva, Switzerland, in December 2003, and the second WSIS in Tunis, Tunisia, in November 2005. The WSIS presents a double opportunity to provide and to begin to develop acceptance that human rights are the foundational framework in the information society. The outcomes of the WSIS in December will be a Declaration, a clear statement of political will, and a concrete Plan of Action of goals for the information society and the means of achieving them. The interim between the summits could be employed to build further consensus and to encourage adoption and implementation. At the 2005 Summit, examples could be presented of concrete implementations and their outcomes, best practices, and lessons learned, as impetus for ongoing, future goals.

The publication of this essay aims to nourish the reflections of those who are preparing

Preface



the December 2003 Summit, of those who will participate in it and of those who will be in charge of implementing its conclusions. We propose an analytical framework of recommendations grounded in human civil, political, social, economic and cultural rights. This framework emphasizes the vital importance of these rights in the development of the information society and the global community.

Human rights are indivisible and inseparable. The expression of human rights must inform our thoughts and actions as we address the current global reality of growing incivility, exclusion and the material and psychological poverty of millions of our contemporaries.

Jean-Louis Roy
PRESIDENT
RIGHTS & DEMOCRACY

Human rights form the keystone in the arch of civilization. When this central stone crumbles from neglect or is shattered by force, human society and the long-growing vines of art, commerce, and culture, lose an essential support and protection, and wither and falter.

The World Summit on the Information Society (WSIS) is a global event. Despite the daunting digital divide, human rights and the information society are inherently global. This essay is a rallying cry, which lays out the substantive issues with the aim of raising the profile of human rights issues at the WSIS, adding to the depth of its deliberations, and involving all of its stakeholders.

The essay provides an overview of the technological landscape of the information society, underlining the potential and pitfalls of developments in ICT for human rights. Specific challenges and opportunities are posed by the ubiquitous information environment for rights to privacy, to security, for freedom of expression, movement and association, as well as access to technology and information, intellectual property rights and the right to education. Recommendations appear at the end, which identify forward-looking strategies for more securely

Executive Summary

embedding the information society in the ground of human rights.

These recommendations include the creation of a World Commission on the Information Society to focus and coordinate ongoing international efforts in information policy and related human rights. The essay also calls for a review of national and international legislation on intellectual property, telecommunications, cyber-crime, security and anti-terrorism to verify their compliance with internationally agreed upon human rights standards and make the necessary revisions.

This essay is intended to stimulate dialogue about the relationship between developments in the field of information policy and the human rights laws and principles that lie at the heart of the United Nations. If the information society is truly to serve humanity and to contribute to our common goal of achieving human rights for all, then international discussions about new technologies must be firmly based in the human rights principles already defined and accepted by the vast majority of the world's people.

"He who governs by his moral excellence may be compared to the pole star, which abides in its place, while all the stars bow towards it."¹

The early twenty-first century is an era of foment and dynamism. Popular media and scholarly literature are filled with visions of utopia and dystopia, cheers and warnings. The chatter reflects the cyclical nature of human experience, not an unprecedented leap, but a continuation of travel along the gyre. One hundred years ago, the newspapers of the world's hegemon were filled with hubristic dispatches from the far-flung empire, bulletins about frightening and incomprehensible attacks by extremist zealots called anarchists, hopes for everlasting peace, and couplings and decisions of power blocs and grand alliances of great powers. All these themes ring familiar in contemporary ears. While some will see the dystopian side, others will be galvanized by the opportunities. Individual reactions do not matter. What does matter, though, is to seize this moment of discontinuity, to harness its energy and to focus it to solve some tenacious problems in a leap of realization. The effort will require a mix of idealism and realism and a long drink at the fountain of lessons from other transformative periods in human history. The idealism will fuel us to reify our social and economic visions, including the centrality of human rights, in the information society. The realism will help us implement them in a workable way.

01 Introduction: Eyes on the Stars

¹ Confucius, *The Analects*, New York: Dover Publications, Inc. 1995, p. 5.

The Crucible: Overwhelming Need

Today, one-half the world's people exists on less than US\$2 per day. One-third of the global population has less than US\$1 a day. Over the next few decades, world population is expected to grow from approximately six billion to approximately eight billion. Of that two billion increase, 90 percent of those individuals will be in developing countries, with 90 percent of them in the megacities. It is hardly possible to imagine a more perfect cauldron of need as well as a more deserving and fertile testbed for the application of political will, economics, law, social norms, science and technology to improve human rights, human health, the environment, education, and information flows and communication. If the globe is considered as a holistic entity, Africa is an open wound on the body of the planet. We would find a psychosis in someone with a cut on her arm, who does nothing to treat it but leaves it, festering and painful, for weeks on end. Yet, the world community carries on decade after decade, willfully ignoring the injury. It is essential to find ways for people everywhere to live decent lives where their human rights are respected.

Poverty, ignorance, hunger, disease, and squalor engender suffering and despair. The fruits of the information society offer the world some of the best promise and opportunity for the future. The means and resources exist to change these conditions, in many cases at modest costs. We lack the will.

Current Trends

The current era is marked by globalization, increasing economic integration, and international flows of information. Information and communication technologies (ICT) and other areas of science and technology are inherently international and increasingly global enterprises. Many of the current areas of rapid technological innovation and development, such as ICT, biotechnology, and materials science, are pervasive, global technologies. Science has long been global and is becoming increasingly so. Nations and cultures throughout the world have contributed over the millennia to the advance of scientific knowledge and its application to improve the human condition.

Throughout their existence, humans have sought to understand and control the physical environment and to transform matter, the use of fire being a signal example. Increasingly, this is possible at the molecular and

atomic levels. Current research and developments in science and technology are expanding our understanding of matter, energy, and time. Previously, biology, physics, chemistry, and other disciplines have been conceived as separate scientific fields. Our increasing abilities extend the human "visible spectrum," as it were, permitting us to probe and manipulate matter and energy at the molecular, atomic, and subatomic levels, as well as the "temporal spectrum," the regions of time outside the range of the human clock, from geological time to femtoseconds. This phenomenon is often referred to as convergence, but that is looking at it through the wrong end of the telescope. The seeming overlap comes from our evolving understanding of matter, energy and time. Moreover, as these scientific and technological developments are commercialized, they become more widely known by the public and are directly experienced by larger segments of the population. As we gain in comprehension, the boundaries, already porous, become more fluid, shifting and blurring the lines between man and machine, organic and inorganic, living and non-living.

As this scientific perspective grows, there is an increasing realization that it is all information-based. Information is data, in other words, a collection of facts, with some meaning attached.

For example, 98456783 is data, but identified as a telephone number, it is transformed into information.

Especially as viewed from an information policy perspective, everything is information. DNA, for example, is just another datatape. Moreover, the advances in, for example, genomics and biotechnology would not be possible without ICT.

Also aided in part by ICT advances, there has been a multiplication of stakeholders in issues of human rights and the information society. Today, relevant stakeholders have expanded in number and range to include: the executive, legislative and judicial branches of national and sub-national governments in developed countries, developing countries, and least developed countries, including the diplomatic corps in national capitals; international organizations; the private sector; non-governmental organizations (NGOs); other civil society participants; academics; researchers; and individuals.

In addition, the voices of some stakeholders have been greatly magnified by ICT. Previously, the right and ability to publish and broadcast has often

been controlled and limited in number, even restricted to use only by the state. Now, it is technologically possible for any organization or person to be a publisher or broadcaster and, at relatively low cost and with minimal barriers to entry, to engage in one-to-one, one-to-many, and many-to-many communication. As a result, NGOs and other parts of civil society as well as individuals have gained enormously in public voice.

The Challenges of the Information Society

In this turbulent mix of political, economic, scientific and social change, the challenges of the information society are many. Specific challenges are the protection of human dignity, liberty, and equality. It will require constant care and sustained foresight, and political will, as the information society evolves, so as not to vitiate our rights, in the name of security or for any other reason. Special attention must be given to vulnerable populations, populations in custodial settings, or populations with diminished rights. Invasive proposals are often made first or early for these populations, often under the guise of protecting them.

As will be further described below, the ICT technological trajectory brings about the ability to mingle matter more skillfully, including more "in" the person. Eyeglasses, hearing aids, and pacemakers are familiar augmenting devices. Future devices, which include wearables and ingestibles, may be more integrated and may be organic. It will also be possible to assess a person more intimately, including continuous, real-time tracking through locational technologies, authentication via biometric identifiers, and communication of information from inside the body to third parties at a distance.

Two broad, cross-cutting themes undergird information policy issues and recur in assessing them. The first is proportionality and the other is the locus of control and ownership of information.

Proportionality goes to the question of whether the proposed solution or measure to be adopted is proportional to the problem or potential degree of harm. For example, the requirement of an iris scan, a supposedly unique biometric identifier, for a customer to withdraw a small amount of cash at a bank machine may be a disproportionate security requirement.

Further, the collection of the iris data of customers in a database may actually create new security vulnerabilities. Ownership and control of information are also key. In some cases, such as for certain types of intellectual property, ownership and control are clear. In other cases, for example, with regard to personal information, the answer is less well defined. If devices inside a person are communicating wirelessly to the doctor, insurer, parents, or the police, who owns and controls that information? Related to control and ownership of information are the rights to have access to the information and to correct errors in it.

ICT developments make it possible to put people more closely under the lens and raise the capacity for violation of political, civil, economic, and social rights and the possibility of increased surveillance. For example, new technologies may be adopted for surveillance purposes and in violation of human rights and visited upon populations that may be completely unaware of both the technological possibilities and their actual deployment. This is true today in developed and developing countries.

In large part, the human rights framework already exists. It is familiar, ratified, and generally accepted.² Its main weakness lies in its implementation and enforcement. In contrast, information policy is a very immature field, with many unanswered questions. Since ICT development and uptake is rapid and information policy is nascent, there is the opportunity to embed human rights principles in the design phase of the information society.

Some, having read this far, are throwing up their hands. The task of building the information society on the firm foundation of human rights may appear too large, too difficult, too far removed from the real world. Are we up to it? An analogy makes the argument for the ability to achieve it. The *Universal Declaration of Human Rights* enumerates the right to health as a human right. In recent years, in recognition of the debilitating economic and social effects of disease, including the diseases of poverty, its preventability through known methods at relatively low costs, and the multiplier effects of improved human health, there has been a broad-based, public initiative, which has involved international organizations, such as the World Health Organization, the private sector, NGOs, health

² See Appendix.

professionals, and many others to improve, in a concrete manner, human health throughout the world. There is a similar opportunity to use ICT in furtherance of human rights. Certainly, information society problems are no more intractable than those of human health. Many would argue, given the technological flexibility and economic possibilities of ICT, that they are much more amenable to improvement.

This essay provides a brief overview of the existing human rights framework, followed by a short survey of the technological trajectory of information and communication technologies. These sections introduce a detailed discussion of a number of specific issues at the intersection of human rights and the information society. The essay concludes with several key recommendations.

It is a rallying document that lays out the substantive issues and identifies common denominators, such as the human rights framework, and points of agreement. The goal of this essay is to instigate dialogue at national and international levels, so as to create concentric rings of agreement and adoption, which will ripple out to touch even the most vulnerable, voiceless members of our societies.

The audience for the essay includes governments, the private sector, international organizations, non-governmental organizations, other civil society participants, academics, researchers, and individuals in developing and developed nations. The essay is intended to make the human rights communities more aware of the human rights implications of ICT and the information society. It will also provide the technical community, who are designing and implementing information and communication systems, with an understanding of human rights principles, their firm foundational underpinnings and wide acceptance. The human rights and ICT communities — technical, legal, policy — do not meet, except in very limited ways through the efforts of a few. This essay is a bridge for increased interaction between these two groups.³

Each of us is implicated in the creation of the information society. What are our social and economic visions? How do we implement them in the world we live in today and in the future?

³ E.g., the American Association for the Advancement of Science (www.aaas.org), American Civil Liberties Union (www.aclu.org), Electronic Privacy Information Center (www.epic.org), Global Internet Liberty Campaign (www.gilc.org), and Human Rights Watch (www.hrw.org).

This section on human rights reviews the relevant, governing documents and the obligations of governments. It notes the primacy of human rights, the inclusion of civil, political, economic, social and cultural rights within the human rights concept, and the role of human rights as an overarching framework. Importantly, it identifies human rights as the keystone in the arch of civilized society to emphasize the point that, without it, the larger structure of civilization and its component parts — commerce, society, arts — are weakened.

Human rights include civil, political, economic, social, and cultural rights. These rights are universal, indivisible, interdependent, and interrelated.⁴ They are considered to function together to form a coherent whole.

Human rights include rights to life, liberty, and security; right to recognition as a person; rights to work and equal pay for equal work; right to an adequate standard of living; right to education; rights to health and security in the event of disability or unemployment; right to participate in the cultural life of the community; right to social security; right to rest and leisure; equal protection of the law, including presumption of innocence and a fair trial; equal access to public service; freedom of movement and residence; freedom of thought, conscience and religion; freedom of opinion and expression; freedom of peaceful assembly and association; freedom from arbitrary interference with privacy, family, home and correspondence; and prohibitions against slavery, torture, cruel, inhuman or degrading treatment, arbitrary arrest, detention and exile.

02 Human Rights: The Fixed Point

⁴ Vienna Declaration and Programme of Action, World Conference on Human Rights, United Nations, June 1993, I, 5.

Ten years ago, more than 170 nations reaffirmed, in the *Vienna Declaration*, that human rights and fundamental freedoms are the birthright of all human beings and reminded all states that their protection and promotion is the first responsibility of governments. In addition to the responsibility for human rights placed on governments, the *Universal Declaration of Human Rights (UDHR)*⁵ proclaims that every individual and every organ of society shall promote these rights and freedoms and secure their universal and effective recognition and observance. For each one of us, human rights protection is an individual obligation and a collective duty.

The modern human rights canon was largely developed following World War II and is, therefore, contemporaneous with ICT developments. Of course, the concepts of human rights and fundamental freedoms enjoy wide geographic and temporal span, as do the efforts of humans to gather information and communicate, around the world, across cultures, and down the millennia.

Human rights are supported by well-developed legal and institutional regimes. They are the subject of a large number and wide range of international treaties and instruments, which have been signed and ratified by the vast majority of countries.⁶ They constitute affirmative international legal obligations of states. The *United Nations Charter* provides the starting point for the current international human rights corpus. The *Universal Declaration of Human Rights* is the "founding document of the modern international human rights movement."⁷ The UDHR, the *International Covenant on Civil and Political Rights*, and the *International Covenant on Economic, Social and Cultural Rights* constitute the *International Bill of Human Rights*.

In addition to the major instruments, there are many other more specialized international accords, such as the *Convention on the Elimination of All Forms of Discrimination Against Women* and the *Convention Against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment*. There are also regional organizations and treaties that address human rights, such as the Council of Europe, the *European Convention for the Protection of Human Rights and Fundamental Freedoms* (1950), the African Union, the *African Charter on Human and Peoples' Rights* (1981), the Organization of American States, and the *American Convention on Human Rights* (1969). Finally, there are human rights rules enshrined in constitutions, as well as in national and sub-

5 **Universal Declaration of Human Rights, GA Resolution 217 A(iiii), UN Doc. A/810, at 71 (1948), hereafter UDHR.**

6 **See Appendix.**

7 **Howse and Mutua, *Protecting Human Rights in the Global Economy: Challenges for the World Trade Organization*, p. 6, n. 1, hereafter Howse and Mutua.**

national legislation. Many nations express the promotion of human rights as an explicit goal of their foreign policies. Since many international and regional accords have been ratified by the majority of states, it would be a modest goal to add those that have not yet ratified them.

Once the Rubicon of ratification has been crossed, the peaks of implementation and enforcement loom. These heights may be difficult to scale, especially without the necessary equipment of functioning legal systems and independent judiciary, and the way can be long. Widespread adoption and ratification of human rights accords and principles initiates the process of creating common legal, social and cultural norms. But, without implementation and enforcement, they are, as a practical matter, ultimately meaningless.

Human rights obligations directly impact governmental sovereignty in two ways, both of which reallocate some of the sovereignty formerly accorded the state, the first to other states and international bodies, and the second to individuals. First, international and regional human rights instruments limit, by their rights and prohibitions, the sweep of the state's discretion with regard to persons within its geographical territory. Secondly, they affirm the role of the person in creating and sustaining the government. Indeed, there can be no collective emanation called government without any individuals to govern. The UDHR, art. 21, provides that "the will of the people shall be the basis of the authority of governments." Howse and Mutua note that "the fact that human rights law has controlled and curtailed the reach of sovereignty, the most fundamental construct in international law, is a testament to its centrality in international relations."⁸ ICT, too, impacts sovereignty and raises many questions of governance, both of the global network of networks itself and of the jurisdiction and ability of governments to implement and enforce national and sub-national laws.

In one sense, this is a good era for human rights deliberations. In 1998, many events were organized in connection with the fiftieth anniversary of the UDHR, which brought additional attention to human rights issues. Using ICT, human rights organizations have been able to organize, mobilize, communicate with one another, rally their constituencies and the public and draw attention to human rights violations. Recognition of human rights principles is high and governments have felt and responded to the pressure. Mexico, for example, entered into a technical cooperation agreement with the United Nations High Commissioner for Human Rights to assist Mexico in strengthening its human rights protections.

8 Howse and Mutua, p. 9.

At the same time, there is a deficit in human rights implementation and enforcement. Hundreds of millions of people are denied the basic human rights provided for by the United Nations. The media chronicle horrific human rights abuses across the world, while organizations from Human Rights Watch to Amnesty International to the State Department of the United States issue thick annual catalogues of human rights violations by nations.

Real progress has been made on adherence to human rights instruments. But, if they are to endure and be effective, they must be embraced, implemented and enforced, so that they become embedded and absorbed into our social norms. ICT may be used to fulfill these human rights principles or directed toward more sinister ends, undermining the freedom of all.

This section of the essay charts the technological landscape of the ubiquitous information environment. It identifies the four features of current ICT developments — digitization, information processing, network bandwidth, and common, decentralized architecture — as well as the five characteristics of the information environment — embeddedness, ubiquity, unboundedness, decentralization, and complexity. These transformative phenomena present both potential and pitfall for human rights. Significantly, future exponential advances in ICT capacity must not be accompanied by matching increases in already yawning gaps in access to information and technology. The traditional concept has been that new communication services are introduced in urban centers and bleed toward the remote and rural regions. This notion must be replaced by the goal of a world without edges, now technically possible, forming a Mobius strip of communication and information access.

It is too narrow to think only about the Internet. Rather, it is the ubiquitous information environment. It is important to look beyond the current information and communication systems to the developments that are rapidly transforming them. Current ICT features are digitization, exponential increases in information processing and concomitant increases in storage capacity, enormous growth in network bandwidth, and the common, decentralized architecture of the Internet, TCP/IP.⁹

Together with the broader trends described in the introduction, the ICT technological landscape and the information society are shaped by the rapidity of the technological cycles, the continual decoupling of formerly fixed technical and proprietary relationships, the conflation of location, and the convergence of ICT with biological sciences and materials science. Not only are the technological development and deployment cycles rapid, but there is also a continued decoupling of previously fixed relationships, both

03 Information Society: The Ubiquitous Information Environment

⁹ Mayer-Schoenberger, Viktor and Deborah Hurley, "Globalization of Communications," *Governance in a Globalizing World*, Washington DC: Brookings Institution Press (2000).

technical and proprietary, which opens the way for new relationships and dynamism. Some of the most fundamental parts of the ubiquitous information environment illustrate this trend. The Internet protocol, TCP/IP, provided a common, decentralized architecture through which any application, such as word processing programs, email, or the World Wide Web, could connect with any medium, whether fixed telephone lines, cable, satellite, or wireless. Public key cryptography created different keys for encrypting and decrypting information, thereby undoing the requirement for identical keys for encrypting and decrypting, as in symmetric cryptography, so that knowing the decrypting key did not automatically convey knowledge of the encrypting key. The World Wide Web offered an open platform on which anyone could post a website. More recently, XML opens up the opportunity for much more flexible establishment of business and other relationships via the global network. There has been a conflation of location, so that physical situation is no longer significant or even relevant, due to the ubiquity of information, the "always on" communication system, and the real-time communication flows. Finally, there is a convergence of ICT with biological sciences and materials science. Biological computing and molecular computing are predicted to be commercialized within the decade. Biological computing uses organic media, living organisms, embedding computing instructions in them and having them carry out those computing tasks. Molecular computing is the combination of atoms into a molecule that processes computing instructions. The rapid convergence of information and communication technologies with biological sciences and materials science will mean that computation and communication will occur in all sorts of media, including solids, liquids, and gasses, as well as within human beings and between human beings and the external world.¹⁰

The Internet is rapidly being succeeded by the ubiquitous information environment, which is characterized by embeddedness, ubiquity, unboundedness, decentralization, and complexity.

Succeeding versions of the Internet Protocol (IP) are being expanded, so that there will be enough IP address space to assign unique IP addresses to approximately every 40,000 molecules on earth, up to a kilometre off the surface of the planet.

Activities are now underway on the lunar and Martian Internets. The Internet was designed to be a decentralized system. The remaining chal-

10 In addition to these developments, it is to be anticipated that unexpected, so-called disruptive technologies, such as the World Wide Web, will bloom from time to time.

allenges of the ubiquitous information environment are not primarily technical. Rather, they relate to the management of very large, complex systems, of which our understanding is still limited.

The ubiquitous information environment presents global issues that can only be truly understood and adequately addressed in an international context. During the last several decades, there have been exponential increases in information processing and network bandwidth capacity, a trend that is expected to continue for at least the next few decades. To be avoided are similar, exponential increases in the already egregious gaps in access to technology and information.

There are more telephone lines in metropolitan Tokyo than in all of sub-Saharan Africa, including South Africa. Moreover, there are plans to lay even more telephone lines in metropolitan Tokyo than in all of sub-Saharan Africa.

In 2001, South Africa announced, as its goal for universal access to basic voice telephony, that each person in the nation should be within a 15-minute walk of a telephone.¹¹ Traditionally, new communication services have been introduced in urban centres and eventually spread to rural and remote areas. Yet, the remote and rural regions may actually have greater and more justifiable needs to have advanced information and communication capacities before the cities. Rankin Inlet, on the edge of Canada's Hudson Bay, has more need for tele-education and tele-medicine than Toronto, whose residents have close physical access to many educational institutions and advanced medical care. In place of the model of new communications services bleeding toward the edges, imagine instead a world without edges, a Mobius strip of information and communication access and availability.

The solution, however, is not a box on every desk. There will be plenty of inexpensive information devices. Most likely, they will be manufactured in developing countries, using technology owned by companies from developed countries. There will be an overwhelming amount of information gushing from the devices. The principal challenges will be to be able to navigate the sea of information to find the information that is relevant to one's own life and then to be able to absorb that information and adapt it to one's own life needs.

11 Chairman's Report, International Telecommunications Union (ITU) Strategic Planning Workshop on the Regulatory Implications of Broadband, 2001, <http://www.itu.int/osg/sec/spu/ni/broadband/index.html>



The fourth section of the essay examines specific issues related to human rights and the information society, including privacy, security, freedom of movement, freedom of association, access to technology, freedom of expression, access to information, intellectual property protection, and right to education.

"...every group that wishes to see conflicting interests resolved reasonably, or is wise about the conditions under which it enjoys its own freedom, must be profoundly concerned with the state of freedom of speech and assembly, freedom of inquiry and teaching, freedom of press and other forms of communication, freedom of cultural opportunity and development. For in large measure intelligent moral choice depends upon them."¹²

The Machine Stops: Dystopia

In the story, "The Machine Stops," E. M. Forster limned, almost 100 years ago, a dystopian picture of a global machine that provides for all human needs, the basic ones of food, warmth, and shelter, as well as the extras of entertainment and travel. People spend their entire lives in isolation, except that they must meet to mate for the purpose of reproduction. (Clearly, Forster's imagination did not contemplate the developments in the biological sciences that have come to pass.) Humans have become entirely dependent on the machine for the functioning of their critical infrastructure. The humans have also evolved socially in response to this environment, so that the notion of touching or being touched by another person is repellant. One young man challenges the machine and, predictably for the genre, meets with a bad end.

04 Issues of Human Rights in the Information Society

¹² Sidney Hook (1902-1988), disciple of John Dewey, and champion of pragmatism and democracy.

The story ends tragically and, yet, in a hopeful way, with a few wise sufferers, who may be able to carry on human civilization. It is a cautionary tale of a global information system gone wrong.

What are the similarities and differences today? Each new utopian vision of our future, courtesy of information advances, is matched by a sombre notion of the possibilities at hand. From cries of alarm about nanobots overrunning the planet to those who celebrate thinking machines as our children and the next phase of human evolution, benign and malign options are imagined, encouraged by the flexibility of ICT.

The task is to articulate a framework for the information society, based on human rights, and to implement it, using all the available tools of law, technology, business practices and codes of conduct, standards and social norms to shape the society that we want.

Privacy: Under the Lens

Privacy includes protection of personally identifiable information and freedom from bodily intrusion. The UDHR, art. 12, provides that a person shall be free from "arbitrary interference with his privacy, family, home or correspondence." There are two international accords on privacy, the 1980 OECD *Guidelines for the Protection of Privacy and Transborder Flows of Personal Data* and the 1981 Council of Europe *Convention for the Protection of Individuals with Regard to Automatic Processing of Personal Data*, which, together, have been adopted by approximately 50 countries. The regional and national legislation of many nations, including many European countries, explicitly recognizes protection of privacy and personal data as a human right. Other countries, such as Brazil, also provide constitutional protections for privacy.¹³

Any discussion of privacy moves quickly to consideration of identity and community and the interplay between these two concepts. There are two senses of identity. First, there is having and maintaining human identity, individuality, selfhood, autonomy, integrity, and personality. This includes the self-conception of who one is, the communities to which one belongs, such as family, religion, and ethnic group, and one's relationship to these various communities. Secondly, there is identity in the sense of being identified, the extent of identification, the manner of identification, whether by an external token, such as a card or password, or by an intrinsic token, such as a biometric¹⁴ or behavioural characteristic, the purpose of identi-

¹³ *Privacy and Human Rights: An International Survey of Privacy Laws and Developments*, Washington DC: EPIC and Privacy International (2002), <http://www.privacyinternational.org/survey>.

¹⁴ Such as fingerprint, gait, iris pattern, retina pattern, hand geometry, and DNA.

fication, and when and under what circumstances identification is made, including the choice to be non-identifiable or not to be identified.

For each interaction, the person may or may not be identified. The choices to be non-identifiable or not to be identified may take many forms. The interaction may be pseudonymous or anonymous. The spectrum of identifiability from identified to anonymity is a broad, largely unexplored and untapped domain. It includes such categories as pseudonymity, member of the group, and authorized user. Information systems have been largely set up with identifiability as the default. There is no technological imperative for this arrangement. It is a legacy of earlier days when the information systems were relatively closed research networks. The identifiability structures have been carried over through the transition from a research tool, used by a few, to a global mass medium that may contain and communicate information about every person and of which every person is a potential user. As the global network of networks expands, it has been tipped toward identifiability. It is important to think rigorously about the levels of identifiability required for various activities in the information society and the burdens that the requirements impose. Researchers¹⁵ have articulated the concept of the one-way ratchet for on-line identifiability. The goal is to employ the lowest level of identifiability for each transaction because, once a certain level of identity has been attached to information, it cannot be reduced, stripped away or peeled off easily.

Identifiability may be accomplished by attaching a person's name, which is the common way to think about identifiability. But, there is also lots of other personally identifiable information (PII), such as identity card and social security numbers, telephone numbers and medical records, which may, singly or in combination, identify a person just as surely as or better than by name. Other personally identifiable information includes behavioural and biometric identifiers, such as fingerprints, gait, iris pattern, retina pattern, hand geometry, and DNA.¹⁶ Where is non-identifiability sufficient? If it is not, does non-identifiable authentication suffice? Even in the physical world, identifiability has often been used in situations where non-identifiable authentication would be adequate.

15 Goldberg, Ian, "A Pseudonymous Communications Infrastructure for the Internet," PhD Dissertation, University of California at Berkeley, December 2000.

16 The use of DNA raises issues beyond its use as a personal identifier. DNA also provides information about physical characteristics, health, and, possibly, disposition toward development of certain diseases. Moreover, a person's DNA does not provide information just about that individual. It may also reveal information about others who are genetically related to the individual, without their awareness and consent. The use of DNA as an identifier, which in some quarters is strongly advocated and in some places is currently being deployed, raises numerous unanswered legal and ethical questions.

In addition to raising privacy concerns, overuse of identifiability may also create security problems. It may lead to large databases of personal identifiers, which may be attractive targets for identity theft, fraud and other crimes. It also imposes additional expenses, in the form of administrative, management, and equipment burdens, through the requirements that the parties that hold this personal information maintain its confidentiality, accuracy and integrity.

Surveillance has exploded, facilitated by advances in information processing, storage, miniaturization, and network bandwidth.

Currently, the average person in the United Kingdom is caught on closed circuit television (CCTV) 300 times each day.

This example starkly raises the question of proportionality. What is the standard for generally placing a population under surveillance? Are previously accepted standards, such as reasonableness, imminent harm, and other legal and cultural norms, being followed, ignored or discarded? The risk, if these technologies are deployed to take ever greater note of us, is that the fundamental principle that a person is presumed innocent until proved guilty, a human right and central tenet of legal systems, will be inverted, so that all of us will have become suspects.

The surveillance is not merely limited to following someone's movements in public places. Locational technologies, such as the global positioning system (GPS),¹⁷ which are being installed in all sorts of devices, provide a means to determine a person's location and to monitor their movements. Satellites are able to record images on Earth at one-metre resolution.

Video cameras, audio recorders, and sensors are being commercialized and deployed to capture and analyze faces, gait, sweat, pulse, and eye movements. IBM's Blue Eyes tracks the movements of a person's eyes to capture both the purposeful looks that she directs at the world about her as well as unconscious glances of which she herself may be unaware.

In the research stage is the Galvactivator,¹⁸ which is able, through measuring skin conductivity, to assess an individual's state of arousal and convey it to third parties.

17 The global positioning system relies on precise timing signals from satellites to determine location.

18 See <http://www.media.mit.edu/galvactivator>.

The most invasive proposals or measures are often made first or early for vulnerable populations, such as children and Alzheimer's patients, for populations in custodial settings, including students, group homes for the mentally ill, and persons with physical limitations, and for populations with diminished rights, such as soldiers, prisoners and inmates in juvenile detention and correctional facilities. Recent examples include calls for DNA databases, which were often first proposed for convicted criminals, for widening segments of the population and the requirement of biometric identifiers to receive social services, such as health and welfare benefits. In addition, it would be useful to study the relationship of privacy and poverty, to look for correlation between income level and the availability or lack of privacy protection. Particular care and attention must be given to guarding the rights of those with less voice in society. Perhaps most sinister is the fact that many of these proposals fly under the banner of protecting the very people whose rights they diminish.

Initially, the thought that non-human elements, with their own computing and communication capacity, might reside within the human body may seem somewhat startling. Furthermore, it may appear at first blush that, although they are on or in the body, like a hearing aid or a pacemaker, they are not part of the human body. Yet, all humans have intestinal flora, which most people, without too much thought, consider part of their human bodies. If someone ingests biological computing devices that will remain temporarily in the body for a treatment or will reside in the body, who owns and controls the device and the information that it generates?

There are many examples of wearables, ingestibles, and injectibles, with beneficial and detrimental outcomes. Diabetes treatment, which formerly required shots of insulin several times each day, is being improved through the use of a wristband that monitors insulin level and administers insulin through the skin in more precise doses, as needed. The use of ingestibles will grow. Indeed, as more nutritional and medicinal elements are added to food and targeted to specific demographic groups, such as children, the elderly, and ethnic groups with dispositions to particular diseases, the Food and Drug Administration of the United States and its counterparts in other countries will be called upon to address the question of what constitutes a food.

Security: Protecting Individuals and Society and Conquering Chimera

"AIR WAR WON," blared the banner headline in the October 10, 2001, edition of the *Boston Herald*. The United States had engaged in aerial

attacks on Afghanistan, a country that the Clinton administration contemplated "bombing up to the Stone Age." The might of the American military, including its commanding air resources, had managed to crush the puny air resistance in Afghanistan. Although the message was clearly intended to soothe a troubled population, by assuring them that matters were well in hand, these reassurances provided a false sense of security, as they disturbingly celebrated victories over phantom problems. The detour distracts attention from the real threats.

Security of the ubiquitous information environment consists of providing for the confidentiality, integrity, and availability of information and communication systems, including the data and information in them. Information and communication systems, including the global network of networks, are not static. Rather, they are dynamic and change over time. Similarly, the state of protection of critical infrastructures is never achieved. It is an ongoing process. Moreover, critical infrastructure protection involves a learning adversary, other human beings. This is in contrast to other areas of engineering, for example the civil engineering task of designing a bridge.

The world is increasingly dependent on a global network of networks that is increasingly vulnerable.¹⁹ The ubiquitous information environment will require survivability and, if not sufficiently protected, will be vulnerable to cascading effects from security failures, the magnitude and consequences of which are not at all well understood. The goal of security of information systems is to protect individuals and society.

The security of information systems is hampered by the absence of some basic elements. First, there is a deficit of data about threats and breaches to information systems. Secondly, software producers have been permitted to introduce into the market software that is of inferior quality or insufficiently tested. This acceptance of buggy software is largely due to a combination of the intensity of technology cycles and competition, governmental acquiescence, and consumer inexperience with the technology. The leniency granted to software producers contrasts sharply with the requirements of product testing and standards, warranties, and consumer protection for other goods and services. It is, moreover, unjustified. The incentive structure to market higher quality software is essentially absent. Software producers have been given a free pass, in the

19 Every day, more computers, communication networks, data, information, and, most significantly, fallible human beings are added to the global network of networks. While the popular conception may be that security threats and breaches come largely from malign actors, such as crackers, in fact, the much larger portion of security threats and breaches come from well intentioned employees and others, who may be fatigued, negligent, or insufficiently trained.

sense of the paucity of liability for losses from software glitches and failures.²⁰ The insurance industry is finally maturing in this area and better appreciates the risks and is, as a result, imposing insurance requirements related to information systems. Measures by the insurance industry may also eventually stimulate more governmental action.

The UDHR, art. 3, provides that everyone has the right to security of person. The *OECD Guidelines for the Security of Information Systems*, which were adopted in 1992 by all the OECD member countries, contain the Democracy Principle and the Ethics Principle. The Democracy Principle provides that "the security of information systems should be compatible with the legitimate use and flow of data and information in a democratic society." The Ethics Principles states, "Information systems and the security of information systems should be provided and used in such a manner that the rights and legitimate interests of others are respected." Interestingly, following the terrorist attack on New York in 2001 and at the lead of the United States, these two principles were eviscerated in the 2002 redraft. They now read, respectively, "The security of information systems and networks should be compatible with essential values of a democratic society," and "Participants should respect the legitimate interests of others."

Where do security threats and breaches come from and how do we react to them, while at the same time upholding human rights and civil liberties? The 2001 Council of Europe *Cybercrime Convention* and the *Patriot Act* of the United States are recent examples that, in the name of security, diminish rights. The unlikely Terrifying Troika of drug dealers, pedophiles, and money launderers, joined more recently by the cloud of the everlasting war on terrorism, is invoked in the most unlikely places as justification for measures that masquerade as security, while they steal our liberties.

It is axiomatic that privacy and security are compatible and can be mutually reinforcing.²¹

For example, protecting personal information in the global networks in accordance with data protection laws will enhance the security of information systems.

²⁰ And efforts to encode freedom from liability, as in UCITA.

²¹ See, e.g., *Guidelines for the Protection of Privacy and Transborder Flows of Personal Data*, OECD, 1980 and *Guidelines for the Security of Information Systems*, OECD, 1992.

Freedom of Movement

Freedom of movement (UDHR, art. 13) is most often conceived as movement in physical space. The information society adds the additional issue of freedom of movement in cyberspace. The surveillance and use of locational technologies described above go directly to the question of freedom of movement. In addition to increasing watch over a person's movements in physical space, it is simple to monitor an individual's activities in cyberspace. Email is easy to read. Records are kept of websites visited, including the order and succession of websites viewed, down to the amount of time a person's mouse hovers over a part of a page of a website. In many countries, this information may be matched, mined, sold, and aggregated. As more and more of a person's interactions occur online, it is increasingly simple to monitor their movements, thereby making it easier, for those who might wish to do so, to restrict them.

Freedom of Association

Freedom of association (UDHR, art. 20) involves the interaction of an individual with another individual or individuals or a community. Meetings may occur for any reason, political, religious, or social, for instance. This value is important because it is the means by which much of the work of the world gets done. Political discourse and spiritual worship both often have important aspects of association. As with freedom of movement, it is important to take account of the aspects in both the physical world and cyberspace. The same surveillance and locational technologies that might be used to follow one person's movements can be easily applied to monitor many individuals or groups. This could have a significant chilling effect on discourse. Similarly, in cyberspace, if individuals participate in chat rooms or web gatherings, it would be possible to monitor them or restrict their capacity to do so.

Access to Technology: Down to the Wire

For the bulk of the population of the planet, billions of people, their first exposure to the ubiquitous information environment will not be like the developed country experience of the late twentieth century. It will not be through a personal computer, sitting on a desk, that an individual interacts with on a discrete basis for several hours a day at work or school. In service of this vision, politicians in developed countries rolled up their sleeves and plugged in boxes and strung wires, which, while excellent politicking grist, did little for the information society. Instead of

the box on the desk, most people in developing countries will reach for a cheap hand-held device. This information appliance will be tiny, perhaps the size of a key ring. It will be manufactured in a developing country, but the underlying technology will most likely be owned by a company in a developed nation. There will be, either legally through intellectual property licenses or illegally by piracy, local adaptations of the device to fit local needs. At command, torrents of information will surge from the device. The question will not be whether people can get the box or the information. The challenge, far more difficult than device or data, will be how, for billions of people, to inculcate the skills to enable people to find the information that is useful to them, to absorb it, and to adapt it to their own lives and needs.

Lest the reader grow too sanguine, the preceding paragraph should not be read to imply that there are no issues of access to technology and information. Rather, it is intended to emphasize that the developed country models for early ICT diffusion will most likely not be the means of ICT uptake for the rest of the world. As we grapple with the daunting prospect of providing meaningful access to technology and information more broadly throughout the world, it would be unfortunate to plan and execute on the basis of early, outdated models.

There are many alternative and creative ways to provide access to technology and information. We are still in the early days of discovering and disseminating them.

In India, for example, approximately one-third of Internet use occurs at cybercafes, which have proved to be popular hubs and gathering places for information access and exchange. This Indian pattern of use may influence broadband deployment in that country.

In Sri Lanka, smart buses, equipped with technology and Internet access, head for remote villages. Local residents are trained beforehand and serve as teachers to their neighbours in the local community. Malaysia has many rivers, which serve as important travel and communication arteries. Adapting the smart bus concept to local conditions, Malaysia has conceived of smart boats, which will ply the rivers, bringing information, connectivity, and training to people throughout the country. It is important to take advantage of existing physical infrastructure and strong local

presence in the community. Post offices, libraries, and schools may be available in many communities. The latter two locations may have personnel with specialized training that is particularly useful for the information society. Canada's Community Access Program is a stunning example of a quick, low-cost, inclusive, and successful initiative to provide access to technology and information.²²

The initial consideration for access to technology and information is availability of the technological infrastructure. The infrastructure may be telephone landlines, wireless, satellite, cable, fibre-optic and combinations of these elements. Each of these technologies has certain advantages and limitations. Satellite is able to provide wide geographic coverage. It is well suited to data communication, but latency problems make it undesirable today for voice communications. Telephone lines differ in age, which may affect availability or quality of some information services. Some in the United States are 70 years old, while in Korea many are relatively new. Cable is widely used in North America for access to information, but in most of the world, cable penetration is very low and the economics of cable, compared to other potential communication media, will probably not justify its installation.

Interestingly, the challenges of providing virtual, real-time, always-on access to information are embedded in basic physical considerations of geography, climate, and demographics. Research and deployment already underway in developed countries may provide useful lessons for developing countries. Canada well illustrates this point. Geographically, Canada is the second largest nation on earth. Notwithstanding this huge landmass, 90 percent of the population lives in a long, relatively narrow, 5,000 kilometre ribbon that stretches along Canada's border with the United States. In Canada are found some of the most remote regions and harshest climate in the world. Canada has long had a strong social commitment to serve its entire population and strives to overcome the environmental rigours to do so. Close analysis of these physical factors is essential. There are physical environments, for example, in which wireless communication may be more robust than landlines.

In many countries, such as the United States, flat-rate subscriber charges have helped stimulate demand for and uptake of Internet services. In many places, high charges for access suppress demand. Indeed, flat-rate pricing may be one of the most important factors for encouraging greater information access, since it allows users to spend time online, experimenting and educating themselves. Yet, governments are reluctant to

22 Tumin, Zachary. CONNECTING CANADIANS: Canada's Community Access Program, A Case Study of Government Strategic Investment on the Internet, 2000.

change the pricing structures, for fear of undermining their sources of revenue. This hesitation is exacerbated by the fact that, due to growth in Internet use, many countries are already experiencing declines in long-distance voice telephony revenue, which slow or halt investment in advanced infrastructure.

Freedom of Expression and Access to Information

The UDHR, art. 19, provides that "everyone has the right to freedom of ... expression," specifically including the "right ... to seek, receive and impart information and ideas through any media and regardless of frontiers." The concept of freedom of expression has a vast literature of its own. Freedom of expression includes the notion of a hierarchy of speech, with political discourse being accorded some of the greatest protection and commercial speech, such as advertising, ranking lower.

The challenge in the information society is to secure this right for all people. Unfortunately, this right is often honoured in the breach. Some governments restrict freedom of expression by means of technological measures and laws. Access to the physical infrastructure is denied, severely limited, or monitored. Information is deemed objectionable on the grounds that it is political, blasphemous, hate speech, or pornography. The number of Internet service providers (ISPs) may be limited, sometimes to one government-sanctioned provider. Saudi Arabia, for example, employs an Internet filter at the country level. It attempts to sift all Internet traffic entering the kingdom by having the King Abdul Aziz City for Science and Technology filter all content deemed objectionable, including that related to sex and gambling and information that is contradictory to Islam and the traditions of Saudi Arabia. China's moves to block access to certain websites has even earned the sobriquet, "The Great Firewall of China." Internet service providers are subject to controls, harassment or burdensome data requests. The information, communications and computers of human rights activists are seized by authoritarian governments. People have suffered arrest and incarceration for posting webpages, sending email, participating in chat rooms, and visiting websites. China sentenced two men to prison terms of 10 years for subverting state power by posting essays on the Internet. In Tunisia, a

man received a two-year prison sentence for false information and stealing Internet services. He published, without the authorization of the Tunisian government and using a computer at a cybercafe, for which he bartered his services, a website, based in France, that provided information and views on politics in Tunisia.

The phrase "access to information" has been around for a long time and has become very politicized. What does it mean to have access to information, what information, when and how? Economics, law, freedom of expression, civic participation, and the function of democracies are all implicated, as well as the dark, flip side of censorship.

Open Government, Access to Government Information, and Freedom of Information

Freedom of information involves the ability to obtain information about governmental documents and activities, an important tool for government oversight and participation in a democratic political system. Indeed, a vital element of the construct of democracy is the duty of the citizen to monitor the activities of her government. In an increasingly information-intensive society, access to governmental information is essential. Many national and sub-national governments have adopted legislation to protect freedom of information. There is a current, unprecedented, global trend toward the adoption of freedom of information (FOI) legislation.²³

Approximately 50 countries now have freedom of information laws, while another 30 nations have efforts pending. But, it is a new area for many nations, which would benefit from the availability of guidance and training in drafting and implementing freedom of information legislation. Ominously, states sometimes enact laws labeled "freedom of information," which are actually tools for censorship.

Intellectual Property Protection and Use

Access to technology and information is closely linked to protection of intellectual property. Interestingly, this relationship is used to make the arguments both for maintaining current rules to protect intellectual property and even to strengthen them, as well as for justifying the diminution or abolition of intellectual property protections.

23 Banisar, David. "Freedom of Information and Access to Government Records Around the World" (2002), <http://www.freedominfo.org/survey.htm>.

The UDHR, art. 27, provides for the right of an author to protect moral and material interests resulting from scientific, literary and artistic productions. The right stated in the UDHR is echoed in other international instruments, national constitutions, and legislation. All capture the basic notion of intellectual property protection, which is to grant to authors limited monopolies in their productions, for the purposes of encouraging innovation and making the fruits of innovation available to others. Rules governing intellectual property rights protect an author's rights in her scientific, literary and artistic productions. Alternatively, an author may relinquish her claim to the work and place it in the public domain, where it is freely available for use by all. In addition, there are vast quantities of data and information to which it is not possible to extend intellectual property protection. Just as the ubiquitous information environment is an extensible resource, the amount of intellectual property that can be created in the world is limited only by human ingenuity and effort.

The continuing increases in information processing, storage, and transmission capacities change the cost structures and economics of information dramatically. Use of information differs in many ways from the use of other goods and services, most simply in that, generally, consumption of information by one does not preclude its use by others.

Moreover, it may be desirable to encourage people to consume ever more information, for their own personal development and for the benefits that the economy and society will reap from more educated and informed participants.

The economics of information is little understood and requires further study. In addition, economists have been developing theories that better include and address social goals, such as environmental protection and labour standards, including child labour norms. It would be helpful also to encourage more study of the economics of the information society, including access to information.

As ICT have developed and the information society has begun to emerge, there has been a large amount of activity with regard to intellectual property protection in the form of international accords, regional and national legislation, competition policy investigations, and the search for new technological and business models, such as digital rights management. Intellectual property protection of software has generated much

controversy, exacerbated by Microsoft's huge market share.²⁴ The fervour of the debate and the wide range of participants indicate the level of uncertainty and the perception of the stakes. The Chairman of the United States Federal Reserve, Alan Greenspan, wondered, "How appropriate is our current [intellectual property protection] system — developed for a world in which physical assets predominated — for an economy in which value increasingly is embodied in ideas rather than tangible capital?" and, moreover, "Are the protections sufficiently broad to encourage innovation but not so broad as to shut down follow-on innovation?"²⁵ Others advocate the preservation and creation of the information commons²⁶ to ensure access to information. Human rights activists maintain that the right to development and other human rights are thwarted by the costs of information and communications technologies, which are so expensive that they are inaccessible in many developing countries. Further, human rights workers assert that free software is essential to human rights, in order to assure that the control of their information remains with them, thereby preserving the necessary independence to permit them to protect lives and to carry out their work in the face of pressure and threats from repressive and hostile regimes.²⁷

The step that would make the biggest sea change tomorrow in intellectual property protection and access to information would be for governments to put the works that they produce into the public domain.

Some nations, such as the United States, already follow this rule. There would be two immediate benefits. First, large quantities of information would become freely available, increasing access to information. Governments, by and large, produce political, social services, economic, and research information, in other words, the types of information that people need for carrying out their lives, helping others, and bettering their own situations. Secondly, governments, by placing their large thumbs firmly

24 Worldwide, in 2001, 93 percent of licenses for new operating systems software for personal computers was for Microsoft's Windows software. In 2002, Windows software was 44 percent of the world market share for corporate servers, not including IBM mainframes. *New York Times*, May 15, 2003, citing IDC, <http://nytimes.com/imagepages/2003/05/15/business/05SOFTch.html> (accessed May 15, 2003).

25 Greenspan, Alan, "Market Economies and Rule of Law," April 4, 2003 <http://www.federalreserve.gov/BOARDDOCS/SPEECHES/2003/20030404/default.htm> (accessed July 7, 2003).

26 See, for example, early work on the information commons by the American Library Association in its Forum on New Technology, the Information Commons, and the Future of Libraries, 2001, www.ala.org.

27 "Human rights, human values, and technology: why human rights advocates need to use free software," Human Rights Data Analysis Group, Science and Human Rights Program, American Association for the Advancement of Science, <http://shr.aaas.org/hrdag/idea/freesoftware/index.html> (accessed July 3, 2003).

on the side of the scale tipped toward more access to information, would reframe the debate and send a strong signal to other content providers.

The challenge of equity, as reflected in the digital divide, consists of the issues of infrastructure, information, education and critical thinking skills. Access to technology and information is most often framed as a North-South issue. This emphasis is valid, but may sometimes obscure an important source of insight and practical measures. Within developed countries, there may be significant differences of access between urban areas and the rural and remote regions and between affluent and poor areas. As governments and the private sector in developed nations grapple with issues of access, which, given economic and political realities, they may be the first to do so, there will likely be many instructive lessons for developing countries.

Right to Education

Far more complex than the provision of technological infrastructure is the availability of education that will give people the literacy and critical thinking skills to navigate the sea of information, to absorb the information, and to be able to adapt it to their own lives.

Nearly one billion adults are illiterate. Two-thirds of them are women. Hundreds of millions of children are illiterate, 100 million of whom have no access to a school.²⁸

In furtherance of the human right to education (UDHR, art. 26), the United Nations proclaimed the period 2003-2012 the United Nations Literacy Decade, with the goal to halve adult illiteracy by 2015.

The information society will both require and facilitate the education of the people of the world. While the information society increases the need for literacy for participation in the job market, it also, with ICT as a key enabler, provides the means to ensure quality education to a larger proportion of the population than ever before in the history of the world. Education can serve as a powerful lever to reduce poverty. This exciting prospect will not only increase chances for more remunerative and fulfilling employment, but it will also facilitate fuller participation in political discourse and social and cultural life.

28 "Research shows that girls' education has a greater developmental payoff than boys' education, and is about the best investment in their future countries can make." United Nations Economic and Social Council, ECOSOC Roundtable Discussion: "Education and Development," 14 February 2002, <http://www.unu.edu/news/ecosoc.html> (accessed May 21, 2003).



This section articulates five sets of key recommendations to define the way forward and to muster scattered forces to renew the effort to embed the development of the information society securely in the ground of human rights. The goal is to stimulate dialogue at national and international levels to create concentric rings of action, agreement, and adoption that ripple out across the globe.

All stakeholders in the information society must contribute to its development, with a common, explicit vision to implant it firmly in the foundation of human rights. Governments, the private sector, international organizations, civil society, researchers, and individuals must contribute their authority, competence, expertise, and commitment. Indeed, the first article of the Charter of the United Nations states that the purpose of the United Nations is "to achieve international cooperation ... in promoting and encouraging respect for human rights and fundamental freedoms for all."

World Summit on the Information Society

The Declaration of the World Summit on the Information Society should record the commitment of states to establish human rights as the platform on which the information society will be constructed. In the interim between the 2003 WSIS and the 2005 WSIS, activities to this end should be undertaken that are high-visibility, low-cost, short-term, and that catalyze or facilitate ongoing activities and other actors in measurable ways. Specifically, in fulfillment of these goals, three to five concrete projects should be identified to provide a quick launch,

05 Key Recommendations: Setting Course

boost, and public statement of increased investment in human rights in the information society.

These efforts should feed into a larger work program for the period after 2005, which can be developed in parallel and adopted at the 2005 WSIS. The work program should be of three to four years' duration, with phases of activity and different timeframes for specific projects, producing a stream of outputs throughout the life of the program. Substantive, crosscutting issues might be chosen for maximum impact. Some of the projects should address the most dispossessed, such as Africa, least developed countries, and failed states, and the most critical policy issues, among them security of the global networks, basic ICT infrastructure, and use of ICT for literacy, food and water safety, and health. All stakeholders must be called on to contribute. The goal for 2010 will be to document specific measures and their outcomes that have raised the human condition, especially in the areas of greatest need, by the use of ICT and human rights.

World Commission on the Information Society

Similar to the Brundtland Commission ²⁹ of the 1980s, a World Commission on the Information Society should be formed to articulate and establish, based on human rights, the necessary norms and institutions for the information society.

Presently, information policy issues are addressed in several international fora, including the International Telecommunication Union, the World Trade Organization (WTO), the Organization for Economic Cooperation and Development (OECD), the United Nations Educational, Scientific and Cultural Organization (UNESCO), and the Asia-Pacific Economic Cooperation forum (APEC). No one organization has responsibility, competence and expertise across the full range of information policy issues and a solid grasp of their inter-relationships. In light of the partial coverage of information policy issues among these institutions, the meagre expertise that does exist is scattered.

Specific Information Society Initiatives

1. Governments should abolish the principle of governmental ownership of copyright, such as Crown Copyright, in information produced by the

29 The World Commission on Environment and Development, chaired by Dr. Gro Harlem Brundtland, which championed the principle of sustainable development

government. This step would immediately inject vast quantities of information into the public domain, making it freely available for use and increasing access to information.

2. Assistance should be provided to developing countries to make the transition to reasonable flat-rate subscriber charges in order to increase access to and use of communication technologies, including the Internet.
3. Governments and the relevant international organizations should review the international instruments adopted to date, which relate specifically to the information society, to assess their compliance with human rights instruments and principles.³⁰ This review should be conducted under the auspices of the Secretary General of the United Nations, in collaboration with the United Nations Commission on Human Rights and the Office of the High Commissioner for Human Rights. The review should recommend, as necessary to bring these documents into compliance with human rights obligations, any needed amendments and additions to the accords, as well as specific, concrete implementation and enforcement measures and mechanisms. Such instruments include the WTO's *Agreement on Trade-related Aspects of Intellectual Property Rights*, *Information Technology Agreement*, *Agreement on Basic Telecommunications Services*, the Council of Europe's *Convention on Cybercrime*, and the OECD's *Guidelines for the Security of Information Systems and Networks: Towards a Culture of Security*, as well as other regional security arrangements under development.
4. Similarly, all governments should review legislation adopted to date, which relate specifically to the information society, to assess their compliance with human rights instruments and principles and revise these documents, as necessary to bring them into compliance. This review should include recent counter-terrorism and national security proposals and legislation by states, such as the 2001 *Patriot Act* of the United States, Canada's 2001 *Anti-Terrorism Act* and similar initiatives and laws in many other countries.
5. States, especially the United States, as a leading producer, user and exporter of ICT and information services, should join the international trend to protect privacy and personal information and adopt national legislation, covering both the public and private sectors, based upon the OECD Privacy Guidelines and the Council of Europe Convention.

30 The Charter of the United Nations provides, "In the event of a conflict between the obligations of the Members of the United Nations under the present Charter and their obligations under any other international agreement, their obligations under the present Charter shall prevail." Art. 103.

6. In order to build human capacity and improve conditions in the developing world, governments should undertake specific measures to increase ICT technical, legal, business, and educational infrastructure and indigenous expertise. Researchers, academics, and experts, including graduate students, in developed countries should be given incentives to become more involved in collaboration with developing countries. Governments in developing countries should be assisted to concentrate their precious intellectual capital on local needs in economic and social development in their own countries and regions, to convene experts from developing countries to collaborate on common problems, and to connect them with developed country counterparts with relevant expertise and interests. This work must be undertaken with care, so as to enhance, rather than overwhelm, local activities and indigenous capacity in developing countries.

Strengthening Human Rights Implementation and Enforcement

The principles of human rights are well-known and recognized and the governing instruments widely adopted and ratified, but compliance and human rights protection are still insufficient. Ratification of applicable human rights accords is the necessary first step. Approximately three-quarters of nations have ratified the two treaties that, along with the UDHR, comprise the *International Bill of Rights*, namely the *International Covenant on Civil and Political Rights*, and the *International Covenant on Economic, Social and Cultural Rights*.³¹ Significantly, China has not yet ratified the *International Covenant on Civil and Political Rights*, while United States has not ratified the *International Covenant on Economic, Social and Cultural Rights*. Similarly, states should accept the jurisdiction of relevant human rights bodies, such as the Inter-American Commission and Court, the African Commission on Human and People's Rights, and the Council of Europe.

States should identify specific, concrete measures that they will take to implement and enforce human rights instruments, especially with reference to issues of the information society. Finally, the United Nations Commission on Human Rights should appoint a Special Rapporteur on the Information Society to complete a study of human rights and the

31 See Appendix.

information society, as an input to the 2005 WSIS and the World Commission on the Information Society.

Additional Research

Since the information policy field is still developing, there are many potential areas of additional research. A few of the most critical are listed here. As the information society evolves, the economics of information must be better understood. Similarly, it would be useful to develop and disseminate further economic theories and studies that include non-economic, social goals, such as environmental protection and labour rules. There should be further mapping of the life cycle of information, through creation, access, distribution, use and destruction.³² As yet, there has been little assessment of the impact of ICT on human rights and of the manner in which human rights laws and policies apply in the information society. Furthermore, there is limited methodology for making these assessments.

Specific, acute issues of the information society, especially for developing countries, should be identified, highlighted, targeted and ameliorated, similar to the manner in which the international community has tackled certain diseases and other human health issues and brought about real improvement.

³² Hurley, Deborah and Viktor Mayer-Schoenberger, "Information Policy and Governance," *Governance in a Globalizing World*, Washington DC: Brookings Institution Press (2000).

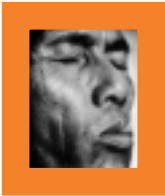


Pursuant to the international legal obligations of states, human rights are the foundation for the information society. It is a solid foundation, with wide adoption and support. As a moral imperative and an exercise of our common humanity, and in pursuit of peace and security, the governments of the world and other stakeholders must pledge a renewed commitment and an engaged and active response to use ICT and to build the information society so as to improve the lives of people everywhere. This is a moment of opportunity. The technologies are evolving rapidly and converging quickly and information law and policy are immature. It is the moment to embed human rights principles, as a firm foundation for the future.

This essay, in identifying the human rights challenges and opportunities of the information society, is both a framing document for further work and a call to action to the great number and variety of stakeholders in the information society. The terrain encompassed by human rights and the information society covers some of the most compelling issues of our era and the opportunity to create a more enlightened, civilized world for our children.

06 Conclusion

The unity of human desires includes air, water, food, shelter, health, education, minimal material comforts, stability, peace, and opportunity for self-expression. The present era offers the opportunity to provide all these things for all of us. Information and communication technologies as a prime enabler and human rights as the facilitator present the best hope for our future in the information society.



Appendix

The vast majority of states have signed and ratified the leading human rights conventions. The Universal Declaration of Human Rights (UDHR), the founding document of the modern human rights era, was adopted in 1948 by the General Assembly of the United Nations without a dissenting vote. The subsequent adoption and ratification of the other main international human rights instruments by so many states underscore the degree of international consensus on the principles of human rights. Information about these instruments as well as state reports appear on the website of the United Nations Office of the High Commissioner for Human Rights at www.unhcr.ch. This data was accessed on July 7, 2003.

This appendix identifies those countries that have not ratified the major international human rights treaties. Some of the countries listed have signed the respective conventions, but they have not yet taken the additional necessary step of ratifying them¹.

ICESCR ²	ICCPR ³	CEDAW ⁴	CRC ⁵	CERD ⁶
Andorra	Andorra			Andorra Angola
Antigua and Barbuda	Antigua and Barbuda			
Bahamas	Bahamas			
Bahrain	Bahrain			
Belize				
Bhutan	Bhutan			Bhutan
Botswana				
Brunei Darussalam	Brunei Darussalam	Brunei Darussalam		Brunei Darussalam
	China			
Comoros	Comoros			Comoros
Cook Islands	Cook Islands	Cook Islands		Cook Islands
Cuba	Cuba			Dem. People's Rep. of Korea Djibouti Dominica
Fiji	Fiji			
	Guinea-Bissau			Grenada Guinea-Bissau
Haiti				
Holy See	Holy See	Holy See		

1 In a few cases, a country may have ratified a treaty, but may have made reservations with respect to it, which run counter to the purpose of the treaty. This has been the case, for example, with the CEDAW. The appendix does not include these reservations.

2 International Covenant on Economic, Social and Cultural Rights: 147 states parties.

3 International Covenant on Civil and Political Rights: 149 states parties.

4 Convention on the Elimination of All Forms of Discrimination Against Women: 173 states parties.

5 Convention on the Rights of the Child: 192 states parties.

6 Convention on the Elimination of All Forms of Racial Discrimination: 173 states parties.

ICESCR ²	ICCPR ³	CEDAW ⁴	CRC ⁵	CERD ⁶
	Indonesia	Indonesia Iran (Islamic Rep. of)		
Kazakhstan	Kazakhstan			
Kiribati	Kiribati	Kiribati		Kiribati
Laos	Laos			
Liberia	Liberia			
Malaysia	Malaysia			Malaysia
Maldives	Maldives			
Marshall Islands	Marshall Islands	Marshall Islands		Marshall Islands
Mauritania	Mauritania			
Micronesia	Micronesia	Micronesia Monaco		Micronesia
Mozambique				
Myanmar	Myanmar			Myanmar
Nauru	Nauru	Nauru		Nauru
Niue	Niue	Niue		Niue
Oman	Oman	Oman		
Pakistan	Pakistan			
Palau	Palau	Palau		Palau
Papua New Guinea	Papua New Guinea			
Qatar	Qatar	Qatar		
St. Kitts & Nevis	St. Kitts & Nevis	San Marino		St. Kitts & Nevis
St. Lucia	St. Lucia			
Samoa	Samoa			Samoa
Sao Tome & Principe	Sao Tome & Principe	Sao Tome & Principe		Sao Tome & Principe
Saudi Arabia	Saudi Arabia			
Singapore	Singapore Solomon Is			Singapore
South Africa		Somalia	Somalia	
Swaziland	Swaziland Timor Leste	Sudan Swaziland		
Tonga	Tonga	Tonga		
Turkey	Turkey			
Tuvalu	Tuvalu			Tuvalu
United Arab Em.	United Arab Em.	United Arab Em.		
USA		USA	USA	
Vanuatu	Vanuatu			Vanuatu

ABOUT THE AUTHOR

DEBORAH HURLEY, RECIPIENT OF THE 2002 NAMUR AWARD, SERVED AS DIRECTOR OF HARVARD UNIVERSITY'S INFORMATION INFRASTRUCTURE PROJECT, AND AS AN OFFICIAL OF THE ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT. AT THE OECD, SHE WAS RESPONSIBLE FOR WRITING THE SEMINAL REPORT ON INFORMATION SECURITY, DRAFTING, NEGOTIATION AND ADOPTION OF THE 1992 OECD GUIDELINES FOR THE SECURITY OF INFORMATION SYSTEMS, AND INITIATING ACTIVITIES ON CRYPTOGRAPHY POLICY. SHE CHAIRED THE ITU WORKSHOPS ON CREATING TRUST IN CRITICAL NETWORK INFRASTRUCTURES AND ON REGULATORY IMPLICATIONS OF BROADBAND, AND THE COMPUTERS, FREEDOM AND PRIVACY CONFERENCE. HURLEY SERVES ON SEVERAL BOARDS AND COMMITTEES, INCLUDING FOR THE U.S. STATE DEPARTMENT, ELECTRONIC PRIVACY INFORMATION CENTER, AND AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.