Ethics Across Fields Essay, Research Paper

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Ethics Across Fields

The purpose of this paper is to determine the consistency of the moral and ethical value systems that guide the practices of organizations that make up the economic fabric of the nation. As scientific advancements and new technologies become readily accessible society experiences the consequences as well as the benefits. Are the decisions of individuals charged with fiscal soundness ethically neutral? What is the impact to society if ethical considerations fail to keep pace with rapid scientific and technological growth? Ultimately, who is responsible?

Why Bother With Ethics?

Because the society we live in is fundamentally based upon performance and profit, it is necessary to impart a sense of corporate social responsibility in regard to modern commerce. Purpose, principle and consequence are the vehicles of ethics in business. They are fundamental components of any organization s social performance. Utilizing these components involves incorporating the interests of ethics and morality into the corporate structure. These are essential concepts that may be absent from a managerial standpoint. Corporate social responsibility should exist within every company’s infrastructure.(1) However, social integrity is not necessarily something that is at the forefront of modern day business dealings. Ethics, business and society must work together or there is no purpose for any of its existence. Unethical practices are what create a climate of contempt and distrust, leading to consumers who harbor animosity. This is no way to run a business.

Ethics are a necessary and critical ingredient in any successful enterprise. Establishing such ethical fortitude is not difficult if a moral and conscientious outlook is maintained. Ethical concerns run rampant among various entities, posing questions along the way as to whether a particular practice is considered morally acceptable. Ethics sometimes get in the way of resolving questions like: What is the ethical concern? Am I being true to myself? Why is this bothering me?

Is it my problem? What do others think? Who else matters? (2)

Establishing reasonable ethical guidelines and their ensuing

corporate social responsibility must come from a management perspective, which is the primary location where policy is derived. Ethical perspectives include purpose, principle and consequence, and myriad ethical considerations in the daily world of business. Each concern presents yet another moral dilemma: Should the decision be made for company or personal gain? What if the company benefits at the expense of society? How many will reap the benefit of individualized attention at the expense of all others? Is there a time when an individual’s interests supercede those of the masses? These are ethical questions posed each and everyday throughout the global business and social worlds. Whether or not the right answers are acted upon is another matter entirely.

Ethical problems of personal and public decision making are not new. The need to undertake ethical reflection is a central part of what it means to be human. (3) Ethical decision-making goes hand in hand with sound business judgment, yet this is not a concept always followed. The very purpose behind ethical behavior has some people stumped as to its true intention. While some believe it s the cornerstone in the foundation of good business, others contend that it brings out nothing more than “an absolutist, rigid set of constraints that violate one’s sense of independent judgment.” (4)

Profiting From Ethical Behavior

In truth, ethics represent moral perspective that, while having a universal theme, is still open to interpretation. In spite of the fact that each person reserves his or her own value system with respect to ethical behavior there still remains a significant void between what some consider to be morally acceptable and what others believe to be wrong. All people have built-in ethical responses. Certain actions are identified as wrong, others as morally praiseworthy. The values of honesty, promise- keeping, truth-telling, benevolence and justice, endure because they are essential to the social fabric of human existence. Without certain fundamental principles of fair dealing and mutual respect, business would be impossible. (5)

Establishing and maintaining corporate ethics is indeed center to

continued success, on both a personal and professional level. Constant nurturing of moral judgment and a specific code of ethics is in order as a means of upholding the positive image necessary to perpetuate corporate policy. The primary elements of such nurturing include having a clear and concise sense of honesty that is validated by society; appropriate and applicable conventions when confronted with difficult situations; managerial involvement in and awareness of ethical issues; a supportive ethics program that is wholeheartedly supported by top management; and staff involvement. (6)

Defining Ethics – Not a Case of Black and White

These concepts represent a complete quest toward ethical decision-making. No one element can create or sustain ethical management and weakness in one element could undermine the whole effort. It can be easily argued that diversity is truly key to corporate social responsibility. However, not all businesses are managed in such a manner. (7)

With the ever-changing workforce, it is imperative that companies open themselves up to reorganization that previously had not existed. Such modifications include the continued application of ethical and moral decision-making processes. These changes are not only representative of on-going change they are also indicative of a more compassionate view towards all components of the business world. Distinguishing these moral and ethical actions requires that a determination if the actions are right or wrong is based solely upon existing social norms. So then what denotes right and wrong?

Unlike other social circles where ethical behavior is dependent upon the social customs imbedded in actions, there exists no clear path of morality to follow when it comes to the corporate world. (8) Ignoring such a path would reap severe consequences upon the business that saw itself as beyond the established ethical norm. The moral argument that helps managers choose among competing duties based upon the best consequences inevitably obliges managers to do what they see as best. Vision, however, is obscured by discussions about stock price movements, instrumental ethics, and shareholder wealth easily obscures the true moral argument. (9)

Determining what constitutes morals or values is the fundamental purpose of corporate social responsibility. Given the fact that all of humanity must coexist on the same planet, there has to be a modicum of consideration with regard to business values. If not, there would be no sense of tolerance or respect for individual life. People have to abide by an ethical code to ensure proper behavior among the world s population. Yet, who is to determine what this corporate ethical code will represent, and who is to say that all commerce must follow it? Clearly, defining ethics is to define man s values and interests. This is a concept that must exist within the framework of all business infrastructures.

Technology and Ethics

Business today involves areas of profitability that didn t exist as little as twenty years ago. Technologies appear in society increasing in kind and speed. These new methods and sciences are accompanied by assumptions about their inherent benefit to mankind. But shortly after they appear questions often arise due to unintended and unforeseen consequences or unclear implications for established moral values.

For example, the following three instances of technology created social problems. Each involves issues that cannot be resolved based simply on the scientific or technical value, but demand reflection on moral principles. Consider:

1. There are not enough organ donations for everyone who needs a liver transplant. How should a physician decide who gets a new liver and who does not and dies

as a result? Should it always be the Mickey Mantles of the world who get priority treatment? (10)

2. Nuclear waste is accumulating at temporary storage facilities all across the United States. But every proposal for the construction of a permanent storage facility is challenged by special interest groups, such as environmentalists, as favoring another interest group, such as the nuclear power industry. How are these conflicts to be resolved? (11)

3. The Fourth Amendment to the U.S. Constitution guarantees a “right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures.” What is the meaning of this right in a world where papers and effects, not to mention persons and places, are increasingly transformed into digitalized information in cyberspace? (12)

Ethical problems of personal and public decision making are not new. The need to undertake ethical reflection is part-indeed a central part-of what it means to be human. But as these three cases indicate, ethical decision making is increasingly engaged with advances in modern technology.

Even if technology does not create radically new ethical problems, as some argue, it surely constitutes a new and important domain for old-fashioned moral struggles to resist temptation and to do the good. The importance of such struggles can hardly be overemphasized, since technological change not only sets up hard problems for ethical reflection, but ethical decisions also influence how we use and live with our technologies. The problems of ethical techno-decision making are compounded by the emergence of two areas of expertise. One area is that of the technical experts who create and manage our medical, energy, and information technologies. Another area is that of those on ethics committees at hospitals, in regulatory agencies, and with professional organizations who articulate and reflect on the issues involved in these various areas of techno-ethical concern.

The last two decades have witnessed the development of a number of specialized fields of reflection on ethics and technology. Among these are biomedical ethics, environmental ethics, and computer ethics. In each case, however, discussions have remained largely restricted to professionals in these different fields of applied ethics. What scientist and novelist C. P. Snow called the “two cultures” gap between literary and scientific intellectuals is related to what had been identified earlier in the century as the “cultural lag” between science and society. (13) This is demonstrated today in the break between technical experts and applied ethicists.

Although one aim of the academic study of ethics and technology has been to bridge this dual culture divide, applied ethics experts sometimes create a new version of the very difference they would overcome. The real promise of applied ethics will be realized only when the conclusions of that reflection transforms technical decision making and enters the public realm.

Science and technology have major influences on everyday life, so much so that they often seem to dominate every waking moment. There is constant encouragement to invest in the most advanced science, and to adopt the most efficient technology, in order to be economically competitive – even though economic competitiveness is not the highest value? Americans experience difficulties controlling the use of various technologies on a daily basis – from limiting the TV viewing of children to attempts at halting the hurried pace of high-tech communication. Although an ethical analysis of technological decision making has begun to emerge among specialized experts, it must be expanded to include all citizens in a high-science, high-technology society. (14)

Experts alone, whether scientists and engineers or philosophers, cannot solve society s problems. Efforts must be made to open and involve the emerging specialized fields of techno-ethical analysis with a wider public.

From Medical to Biomedical Ethics

One reasonable way to begin is with a review of some recent developments in biomedical, environmental, and computer ethics and relating them to the real-world problems facing society. From its earliest history, medicine was associated with the acceptance of special moral obligations by those who attempted to assist nature in promoting health and overcoming illness. Because physicians brought specialized knowledge or expertise to bear on vulnerable patients, the Hippocratic tradition of medical ethics emphasized their responsibilities not just to avoid harm and to do good but also not to disclose confidences or to take sexual advantage. At the same time there was always an implicit responsibility on the part of patients to trust in or to do as their physicians recommended. The expert knowledge or skill of the physician and the ignorance or need of a patient was mediated by the ethics of medical authority on the one side and by traditional patient docility on the other. (15)

In the last hundred years, and especially since the 1960s, infusions of the advancing knowledge and power of biology and the life sciences have transformed medicine. Increasingly, the adequacy of the Hippocratic tradition of medical ethics is called into question . Physicians are no longer concerned only with treatments that help patients to recover a natural state of health. Instead, expanding abilities allow doctors to preserve physical life disconnected from psychological and spiritual experience, and to alter human experience by artificial instrumentations. Such practices raise fundamental questions about the end of medicine. Is it a proper aim of medicine to preserve the “life” of comatose patients who, prior to the development of artificial respirators, would experience a natural death? Is the only way to escape pain the technically assisted suicide of a Dr. Kevorkian? Should medical science and technology aspire to so chemically alter our immune systems as to make us receptive to organic, artificial, or trans-species organ implantations? And on what basis are scarce medical resources such as donated organs to be allocated – especially when such decisions effectively determine who lives and who dies?

The Karen Quinlan case of 1975 was among the first to bring such issues to public attention. In a persistent vegetative state after an accident, Karen was kept “alive” by means of an artificial respirator and a feeding tube, in opposition to her parents’ request (based on counsel from their Catholic priest) that she be allowed to die. The parents were forced to go to court to secure a right to have the artificial respirator disconnected, that is, a right to refuse medical treatment. This is an instance of action in the best interest of despite the prevailing ethics of physician expertise and professional practice. The New Jersey Supreme Court decided that not just physicians, but also patients and their guardians, should participate in informed decision making about medical care, something that had not previously been included in the medical ethics tradition.

Professional ethics and patient docility had combined with powerful new medical technologies to dehumanize treatment in ways that could be redressed only by limiting physician autonomy and encouraging informed decision making by patients. Although ethics specialists have argued over patient-rights for two decades, the situation hasn t changed materially, as evidenced by a Journal of the American Medical Association report in November 1995. The article recounted the four-year effort “to improve end-of-life decision making and reduce the frequency of a mechanically supported, painful, and prolonged process of dying.”(16) Over and over again, in almost ten thousand cases, patients failed to be actively involved in decision making about their terminal care, resulting in an extended period of pain and prolonged high-tech death. For the physicians who did the study, it “casts a pall” over claims that the experts can reform themselves.

Reflection on such cases in techno-scientific medicine have transformed medical ethics into what is now called bioethics or biomedical ethics. With biomedical ethics there is an attempt to draw upon and educate physicians about the broader principles of ethics beyond those traditionally found in medical ethics. Doctors must adapt and apply these principles to the unique situations created by high-tech medicine. One general issue in biomedical ethics, for instance, is the problem of dehumanizing patient care. Hospitals no longer promote contact with the curative powers of nature (as was the case, for instance, with traditional sanatoriums). Patients are diagnosed by means of techniques that increasingly diminish direct physician-patient contact. Hands-off diagnostic means are found from the thermometer and stethoscope to X-ray machines, electromagnetic resonance tomography, and expert computer diagnostic systems. Patients are treated with injection, drug, radiation, and surgical therapies as abstract and impersonal in their own way as the electricity or statistics upon which those treatments depend.

Issues go beyond the treatment of individual patients, especially when public expenditures are involved. How much public investment should be made in medical research, as opposed to preventive public- health measures? What kinds of medical research should be funded? Public debates about the relative governmental support for AIDS versus breast cancer research, for instance, have pointed out that although many fewer people die from AIDS than breast cancer, it is AIDS that has until recently been accorded a much higher funding priority. Is the problem one of better lobbying by a homosexual minority or a failure of women to speak out on issues that affect them? Indeed, recent disclosures about tamoxifen trials that, in the name of breast cancer research, subjected thousands of women to greater risk than breast cancer itself led Dr. Charles Weijer, a fellow in research ethics at the Medical Research Council of Canada, to argue for a much wider, democratic involvement of potential victims in cancer research. “To negotiate the many agonizing choices ahead: treatment or prevention? Aggressive treatment or minimal treatment? Quantity of life or quality of life? Investigators need the input of the entire community affected by cancer.” (17) Physicians should not be left on their own to make such decisions, and patients should not simply accept physician recommendations.

The case of the liver transplant for Mickey Mantle highlights another aspect of this public-policy debate. Transplantable organs are in short supply. Mantle needed a liver transplant because of his years of drinking, and he was able to get it quickly because he was rich and famous. According to Dr. Arthur Caplan, director of the Center for Bioethics at the University of Pennsylvania, “Spending $300,000 for a liver transplant for somebody who brought harm upon himself is not a prudent use of scarce money and scarce livers.” Nevertheless, this issue cannot be left to individual physicians or individual patients to decide. In Caplan’s words, “If society wants to pass laws saying no transplants for alcoholics, no transplants for felons or for smokers or for people who drive too fast, then it should.” But society “should not dump the issue of what to do about sin on those who work at the bedside; they’re not equipped to make judgments and it violates their professional ethics.”(18) Clearly it is not just physicians who should pass such laws; it is the general public that should legislate, since it is the public that will be affected. Yet a democratic public must itself become informed by the reflective contribution of biomedical ethics if it is to avoid unintelligent or morally pernicious regulations.

The Environmental Expansion of Ethics

The rise of the environmental movement and the development of environmental ethics constitute an even more general attempt to extend traditional ethics in the face of another challenge of technology, that is, environmental pollution by industrial technology. Until the industrial revolution, the need for a treatise between mankind and the planet was non existent. Therefore, there are no ethical guidelines concerning the environment. For example, the Ten Commandments contain two kinds of prescriptions: those concerned with human relations to God and those focused on relations between human beings. There are no guidelines on how humans should treat the natural environment.

Originally no such guidelines were necessary, for two basic reasons. First, among pre-modern peoples respect for nature was a given. The very goal of life was commonly understood as a harmony with the natural world and its orders. Second, from hunter-gatherer tribes through the agricultural revolution to medieval societies human technological power was mostly so limited that only in exceptional circumstances did it have a major impact on nature. But with the rise of modern techno-scientific civilization, not only does a kind of disdain for nature make a major appearance in culture, but human technological power also acquires the capacity to exercise major impacts on the natural environment at both the local and even the global level. Prior to the modern period, nature served as a fundamental touchstone for ethics.

From Aristotle through Cicero to Thomas Aquinas, natural law ethics presented the ultimate human good as harmony with the whole, of which the human is no more than a part. However, the fundamental movement within modern ethics, from the Magna Carta of 1215 to the Endangered Species Act of 1973, has enlarged the realm of the morally significant. Although for the first five hundred years of this movement the expansion remained within the strictly human realm, the last century has witnessed provisional extensions beyond the anthropological.

Modern biology, for instance, affirms strong interrelationships between humans and the natural world. And although some might interpret this to mean that humans should be treated no differently from animals, environmental ethicists have more persuasively argued for the moral treatment of animals, plants, mountains, ecosystems, and the planet. The “World Charter for Nature,” adopted by the United Nations in 1982 (a third of a century after adoption of its Universal Declaration of Human Rights) provides order to this transformation. (19)

There are, however, two basic approaches to the ethical defense of nature: the anthropocentric and the bio-centric. Rachel Carson’s Silent Spring (1962), considered the founding book of the contemporary environmental movement, was fundamentally ambiguous in this respect. When calling attention to the unwitting destruction of the environment by DDT and related petrochemicals, Carson as humanist pointed up the harmful effects these could have on people, and as naturalist she described the harm they impose on nature. The anthropocentric approach argues that moral analysis must be expanded to include nature because of the value nature has for human beings. Nature must be respected primarily as a means to human ends. In the absence of any vision of another way, the only solution to the problems of modern technology is thought to be simply more, and more modern technology.

In contrast the bio-centric approach, which includes diverse issues ranging from animal liberation to deep ecology, argues that nature has value and requires moral consideration independent of any human utility. Human beings have a moral obligation to recognize that they are part of a larger reality and that, at least occasionally, they ought to sacrifice their individual or short-term collective interests to those of the whole. Based on a new perception of nature as ecology, it becomes necessary to reformulate or recover previous societal value systems in relation to nature.

Such differences in fundamental theory are evident in a host of environmental debates, from those about how to clean up the Exxon Valdez oil spill to the extent of economic sacrifices that should be made to preserve various endangered species. Anthropocentric environmental ethics tends to validate an ultimate human dominance while respecting nature for its human benefits only. Whether nature can truly be respected when viewed on such strictly utilitarian grounds is, however, open to question. Bio-centric environmental ethics, in contrast, tend to grant an ultimate supremacy to nature, independent of man, and to require the sacrifice of human economic good in order to preserve biodiversity. Yet recent discoveries in the fossil record of at least five major destructions of biodiversity challenge the bio-centric claim that contemporary human practices create an unprecedented threat to nature. (20)

Consider as well the current debate about nuclear waste disposal. Once again anthropocentric environmentalists tend to think in terms of trade-offs between environmental preservation and economic costs, whereas bio-centric environmentalists present opposition to nuclear waste as a kind of definitive urgency. But since all economic costs will ultimately be borne by society, and even clear-cut imperatives must be acknowledged by social consensus, a case can be made that here, too, the issue must not be left in the hands of either an ethicist elite or the environmental activists. Just as the technical community cannot by itself make the final decision about the disposal of nuclear waste without appeal to some moral justification, so must any moral justification finally reflect the development of a technically and ethically informed public consensus. (21)

Computer Ethics for Professional and Public Organizations

Just as much as environmental ethics, computer ethics constitutes a new dimension of ethical reflection. When electronic computers came on the scene in the 1950s, they did so with much enthusiasm for their ability to do massive number crunching and to perform intensive data-management operations. Questions

about the impact of computers on people surfaced only at the edges of thought. While the 1950s and ’60s witnessed some discussion of the social challenges of automation and computer depersonalization, much more intense intellectual debates focused on whether computers could think.

For a hundred years, Darwinian evolutionary theory had stimulated debate about whether humans had evolved from apes, and how closely we might still resemble the higher simians. Now a basic question of anthropological philosophy has become, to what extent does artificial intelligence, or AI, which has evolved from humans, resemble its makers ? Although the AI debate had obvious practical ethical implications, it was discussed almost solely as a theoretical or metaphysical issue. One of the first people to place ethical issues in the forefront of reflection on AI was Joseph Weizenbaum, a computer scientist at MIT.

In the mid-1970s Weizenbaum discovered that one of his exercises in the computer imitation of certain conversational strategies had been used to create a program called DOCTOR, which was being taken seriously as a tool for psychotherapy. “I was startled,” wrote Weizenbaum, ” to see how quickly and how very deeply people conversing with DOCTOR became emotionally involved with the computer and how unequivocally they anthropomorphized it.” (22) According to Weizenbaum, this was just one area in which people were turning “the processing of information on which decisions must be based over to enormously complex computer systems.” (23) This seriously limits the kinds of questions and data that can be utilized. Moreover, because of their complexity such systems are not able to be completely understood by those who rely on them. As a result, any such computing system has effectively closed many doors that were open before it was installed.” (24)

Computers, like other fundamental technologies, offer certain opportunities while blocking others, thus altering the course of history in a manner not unlike the way political change can open a new path in social development at the same time it closes off many alternatives. The difference is that brute force is admitted as playing a major role in the political realm, allowing politics to be regularly subjected to criticism. This criticism provides a vehicle to identify irrationalities. Changes brought about by science and technology are generally thought to be the products of reason. Therefore, they are much less commonly questioned concerning the consequences. (25)

The shift from theoretical to ethical and political discussions about computers did not take hold until large-scale, relatively isolated mainframe machines were augmented by small-scale, much more widely available personal computers. Time magazine, reflecting public recognition of the importance of this augmentation, designated the personal computer “Machine of the Year” in January 1983. During the remainder of the 1980s computer ethics became a theme for discussion and education, especially among professions within the computer community. This discussion has become ever more prominent with the expansion of computer communications on the Internet.

Here one of the issue is that of corporate security and its flip side, personal privacy. Although extensive bureaucratic record keeping is no new activity, computerized information is vulnerable to electronic invasion and manipulation by hackers and program viruses in ways that hard-copy records never were. Additionally, much more information is being collected than ever before, and in forms that allow the linking of medical, financial, and legal records to create integrated profiles of use to commercial as well as law-enforcement interests. To what extent such virtual papers and effects” should be protected from criminal trespass as well as against “unreasonable searches and seizures” by the government? How would protection against such invasion best be implemented? These are issues subject to considerable debate within the technical community and its ethics experts. (26)

Reflecting public concern, especially about threats to privacy, computer professionals have developed codes of conduct that limit opportunities for unwarranted appropriation by individuals, corporations, or the government. The code of ethics of the Association for Computing Machinery (ACM), the largest computer-professional organization, prescribes that “an ACM member, whenever dealing with data concerning individuals, shall always consider the principle of the individual’s privacy and seek the following: To minimize the data collected. To limit authorized access to the data. To provide proper security for the data. To determine the required retention period of the data. To ensure proper disposal of the data. ” (27) Such professional efforts take into account ethical concerns about the right to privacy clearly and constitute efforts not only to reevaluate the application of established ethical values but also to work toward a broader consensus about the role of computers in society.

Advocacy efforts of the Electronic Frontier Foundation (EFF), a nonprofit organization co-founded by Lotus 1-2-3 developer Mitchell Kapor and Wyoming libertarian Republican John Perry Barlow, also deserve mention in this regard. For EFF, efforts to protect privacy must be complemented by openness in technical-design principles and a public-policy defense of electronic civil liberties. The public-policy aspect of such a position depends to some extent on the technical possibilities and even more on ethical understandings of those possibilities. It would be contrary to democratic principles for the technical community alone to attempt to implement these commitments independent of public involvement. Respect for concerns about the electronic availability of pornography and other morally questionable forms of information are additional considerations. (28) But even when the creation of personal data is limited and protected, and civil liberties are properly protected in cyberspace, such enormous quantities of information are being produced by digital means as to constitute what has been called a problem of “information overload.”

Daily, the staggering amounts of scientific data that are electronically produced and collected by satellites; atmospheric, geological, and oceanographic monitors; telescopes; and laboratories

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throughout the world are digitalized versions of documents, texts,

audio recordings, videos, maps, photographs, paintings, and so forth, all of which are gushing into the Internet. The Internet has recently been described as resembling “an enormous used book store with volumes stacked on shelves and tables and overflowing onto the floor, and a continuous stream of new books being added helter-skelter to the piles.”(39) Efforts to manage this information explosion have led to the creation of computer programs to scan and sort such material. “Smart instruments that analyze data even as it is being created are complemented by “search engines,” “knowbots” (i.e., knowledge robots), and “intelligent agents.” These virtual users are becoming the scouts of the information frontier.

Right behind such electronic scouts, however, the new information frontier is being peopled with virtual settlers. When such virtual settlers use the Internet as a combination postal system and telephone network, it creates what author and editor Howard Rheingold in 1993 called “the virtual community.” But what kind of community is it when people use cyberspace to log on as electronic fictions, projections of themselves in interactive multi-user domains? In these cyber-stages for role play and reversal, men represent themselves as women and women men; the shy come on as aggressive; the unattractive describe themselves as beautiful. What are the ethics of the masquerade ball, when the party can continue indefinitely? Does such utilization of cyberspace constitute a new learning process, or is it an escape from reality? Surely these, too, are questions to be decided off line as well as on, by the public as well as the cyber-citizen.

From mainframe through personal computer to Internet, the electronic computer has transformed information and human communication in unanticipated ways that are giving birth to what has been variously termed cyberspace, virtual reality, or hyper-reality. To live in this new milieu, however, requires not virtual but real ethics, grounded in practical and public reflection on the new techno-life world.

Responsibility Extends Beyond Specialized Domains

It s not necessary to argue that the ethical problems of technology are unique to suggest that those issues are significant. Even if not unique, modern technologies multiply, extend, and intensify the consequences of human action. By enlarging technological power to the point where it can destroy whole cities and by shrinking technical ability to levels of genetic and atomic structures, modern technology extends humanity s impact on time and space as never before. Technology has moved far beyond being used by human beings who remain outside of it. Today, technology encompasses and carries humanity into new realms of experience. But it does not carry society beyond the realm of ethics. Mankind does not live in order to make and use technologies; Mankind makes and uses technologies in order to improve the quality of the life he lives.

Given the medical, industrial, and computer technologies available today, society can work to assess the benefits and risks, submitting technology to the principles of justice, or leave it in the hands of profit oriented market forces. There is a sense, however, that society cannot avoid being ethical in the ways it decides to use science and technologies. To claim that turning over decisions about what technologies to have and how to use them to an “invisible guiding hand” is, in itself, making an ethical decision. No matter the design and use of medical technologies, no matter what the decision on how to treat the environment, no matter what is done with computers, an ethical, not just a technical, impact will be felt by society.

Although some technical professionals and many professional ethicists have recognized this as truth, it is a truth that requires a wider appreciation. This is necessary to support public participation in discussions where more specialized reflection is required. Decisions about how to practice medicine, protect the environment, and construct the information superhighway can be made in one of three ways:

1. We can assume that the problems are so complex that they must be left to the experts, that is, to scientists, engineers, and their ethics counselors.

2. We can insist that these problems must be handled by the public, within the boundaries of traditional values, even though the public often lacks adequate technical knowledge or sufficient reflection on the ethical issues involved.

3. We can strive to create an informed public that works with technical professionals and their ethics counselors to reach an informed consensus.

The first option is intelligent but undemocratic. The second is democratic but unintelligent. What we must do is strive for the third way, an intelligent democracy that integrates cultures of expertise into a self-reflective public. Only this can set the stage for realizing the full promise of the applied ethics of technology.

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