July 2005

Sustainability as a Meta-Norm for Democratizing Technology

Tyler Veak
Liberty University, tveak@liberty.edu

Sustainability as Meta-Norm for Technological Design[1]

A number of theories of democracy and technology have emerged over the last 25 plus years. Langdon Winner, Andrew Feenberg and Richard Sclove are just a few names that stand out; however there are many others as scholars are beginning to recognize the great importance of this subject…

Certainly, one could argue that some of these theories are more viable or complete than others. But I believe they share a common goal, which is to open up the technological design process so that those affected by particular technologies may have an influence in shaping technology for their ends or interests. The quibbles, and there are plenty of them, come in how to accomplish this goal.

This talk, however, is not intended as a critique of any particular theory of democracy and technology, or as an endorsement of one over the others. Rather, my purpose here is to suggest some ways in which to build on this common goal. In particular I'm interested in how to incorporate the notion of sustainability into the discussion of democracy and technology. Granted, this isn't exactly a new suggestion. Feenberg (1999) claims that environmentalist's struggles with technology represent **"the single most important domain of democratic intervention into technology"** (93), and Sclove (2000) argues that any viable theory of democracy and technology must incorporate environmental norms.

As far as I know Winner's book, *The Whale and the Reactor,* is the most explicit treatment of this subject; however I'm not exactly sure what the heck he is saying there. So the point is that there is at least some recognition of the need to connect environmental norms with efforts to democratize technology, yet to my knowledge little work has been done in this area…

It seems patently obvious that any effort to democratize technology must incorporate some notion of what is commonly referred to as "sustainability." If not we risk falling back on the default norms of capitalism and the market system. Note, for example, President Bush's justification for not signing the Kyoto Treaty, claiming that he would not do anything that would damage the U.S.'s economy. This is ludicrous! If global warming is a reality—and that is the consensus among those who know—then what the hell is the point of talking about a strong economy in the face of global environmental destruction???

In our well-intentioned efforts to democratize technology we must acknowledge that we are deeply embedded in technological systems that are far removed from the real world in which many still face crucial life threatening environmental problems. Much of the environmental disparity or environmental injustice in the world today emanates from non-sustainable technological systems, whether in terms of consumption, or unequal distribution of pollution burdens. [And by "we" I mean most of us sitting here—citizens of advanced capitalist countries.] Just to give two quick examples: fifteen percent of the world's population consumes almost seventy percent of the energy, and the U.S. with less than five percent of the world's population contributes over twenty percent of the greenhouse gas emissions (EcoWorld 2000). And these disparities are directly connected to wasteful technological super-systems. Clearly, the masses that are getting the short end of the environmental justice stick would claim that the technologies contributing to these disparities need democratizing.

However, there are problems with attempting to bring sustainability into this discussion. The term "sustainable" has been co-opted by technocrats, and used to justify virtually any kind of development. In addition, any talk of sustainability usually revolves around the concept of limits or constraints. This immediately raises red flags, or maybe I should say the green flags of

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"enviro-fascism." That is, people tend to feel that any mention of limits and constraints equates to loss of freedom and a threat to democracy. Just look at the controversy over the loss of privacy and personal freedom in the post-911 era. Many people see environmentalist's push for sustainability as a similar threat.

Nevertheless if the goal is to in some way achieve an equitable stasis of life on earth, then some degree of resonance with natural systems must be achieved. I will argue that the best way to achieve this goal is to focus on human needs. That is, how they are created and established, by whom, and how they are satisfied. But there's a problem with this as well—in that our needs and interests are largely determined by the technological systems in which we live and move and have our being. As Winner says, these technological super-systems tend to take on a life of their own with their own imperatives. Consequently, our needs no longer take nature, however conceived, into consideration. In other words, there is a major disconnect between our actions (namely consumptive habits) and their effects (namely by-production or pollution). Therefore, relying on the needs and interests of participants is somewhat problematic in terms of democratizing technology. Given that human needs are constructed along with the technologies themselves, they tend to become synonymous with the needs and imperatives of the system.

[And just so you know, I'm not ignorant of the problems of throwing out a controversial term like "nature." I'm thoroughly schooled in the social constructivist tradition. However, I do take it for granted that there is an objective world out there that we are for better or worse interacting with, and that our decisions with regard to technology are one of the most important in terms of creating a sustainable relationship with nature.]

So in sum, I believe there are two issues that must be addressed if some notion of sustainability is to be incorporated into a theory of democracy and technology. First, we must

have a sound theory of human need which I believe hinges on recognizing the connection between production and consumption. Secondly, I will argue that the problem of the distancing from nature created by large technological systems is best framed in terms of commodification.

[And yes, in case you haven't figured it out by now, I will be drawing on the Western Marxist, Critical Theory tradition. I encourage all you naysayers not to walk out. I will do my best to convince you that Marxism and Critical Theory have something to add to this important subject. In addition, I need to make clear that I am primarily referring to the U.S. context in terms of environmentalism, politics, and technology. Things are vastly different on this side of the water where the Green Party is actually a viable political force, rather than a St. Patrick's Day celebration…]

Now to the issue of production and consumption… Even though the majority of Americans consider themselves environmentalists, this typically means a putting Sierra Club bumper sticker on the back of their SUV and going on their merry gas-guzzling way. Citizen activists must realize that their consumptive habits fuel the very technologies that are negatively affecting them (or someone else—which is the driving force behind the Environmental Justice movement). They must, in other words, make the connection between production, or by-production, and consumption. Crucially, citizens must understand that technology is not simply the by-products of the artifact that they see threatening their lives—for example, the incinerator that an industry is attempting to put in their backyard—but the entire process, or system, that supports this artifact. The research and development that designed the processes and products, the manufacturing process that created the waste, the transportation system that ships the waste and the laws that permit such actions are all part of the technological system that brings the

incinerator to bear on a local community. Somehow this complex web of people and machines must be sorted out.

To do so, citizens must see themselves as the living material of technological systems—as social process, in other words—that they are part of the very systems that threaten their way of life. They must ask questions such as—how corporatism, capitalism, technology and pollution are related. What products contribute to the waste? Who buys these products and for what purpose? The answers to these questions serve to reveal the connections between the corporate producers and the citizen consumers, and leads to the crucial subject of "human needs." That is, how are they defined, and by whom?

Human Needs and Satisfaction

Environmentalists have attempted to address the subject of human needs in various ways, but they have focused primarily on constraining the human appropriation of nature—what is usually referred to as "conservation." This is where the rhetoric of sustainability, or sustainable development, enters the discourse. We must conserve resources or we must constrain our consumption to achieve some kind of equitable stasis. The "limits of nature" are boldly proclaimed. Nature is being depleted of non-renewable resources (i.e., sump), or conversely that nature can only accommodate so much pollution (i.e., sink). But framing the problem in these terms encourages a neo-liberal solution—that is, establish minimal laws of constraint and place the burden of responsibility on the individual. However, pushing individual citizens to conserve energy and recycle waste, as well intentioned as this may be, will not solve the immense environmental problems facing us today. It serves merely to accentuate the radical individualism

that undoubtedly contributes to a failure to respond effectively to environmental problems. I would argue that we should instead focus on the connection between human need and the appropriation of nature via technology as the satisfaction of that need.

The issue of needs and how they are satisfied has been an important topic in the Western Marxist tradition since Marx's early writings, where he envisaged a dialectic between humans and external nature that is mediated by technology. According to Marx (1964[1932]), humans objectify their species being in and through their creations—their appropriation of external nature—and contemplate themselves in the worlds that they create (114). The given mode of production and corresponding social organization frames the way in which nature is appropriated. Obviously, a major factor is the perceived needs of the individual and the community to which she belongs. In addition, every society has a particular way of engaging nature with technology to obtain their perceived needs. But what is produced and how it is produced plays a crucial role in defining the needs of consumers. Marx (1970) explains: "Production thus produces not only the object of consumption but also the mode of consumption, not only objectively but also subjectively. Production therefore creates the consumer" (197).

According to Marx, the capitalist mode of production reduces human needs to the basest elements, because it alienates the worker from the product of their labor. Here we see the origin of the split between production and consumption, with production becoming veiled by the commodity form [which I'll talk more about in just a minute]. The worker is reduced to basic biological needs because they are forced to labor simply in order to survive. Working merely to satisfy physical needs, humans are no different than animals. Conscious free activity is what distinguishes humans from animals. According to Marx (1964[1932]), the needs above and

beyond basic needs are uniquely human, such as the need to create, to accomplish, and to commune with others.   True production in the creative sense imagined by Marx means more than meeting immediate physical needs. The richness of human sensibility is achieved through freely interacting with "humanized nature," that is, through the process of creatively satisfying needs by appropriating external nature. And technology is the means of appropriating nature. Conversely, when humans are reduced to "practical need," as occurs under capitalism, human sensibility becomes stunted (Marx 1964[1932]: 141).

Under capitalism **"everyone speculates on creating a *new* need in another … to place him in a new dependency"** (Marx 1964[1932]: 147). Who we are is equated with what we can buy, that is, with money and how much we possess. "Need" is defined by money, if the possibilities for satisfying needs are determined solely by the quantity possessed by an individual (Marx 1964[1932]). So framed, the universal solvent of money eliminates individuality.

Herbert Marcuse (1964[1932]) expounds on Marx in his discussion of how advanced technological society replaces "true needs" with "false needs." False needs are **"those which are superimposed upon the individual by particular social interests in his repression: the needs which perpetuate toil, aggressiveness, misery, and injustice"** (Marcuse 1964[1932]: 5). Clearly, with the rise of modern technological societies "nature," and "production" have become engulfed by large technological systems. In this sense, the domination of rationality goes to the very core of human existence. In the technologically constructed one-dimensional society humans are conditioned to want what they get.

Through targeted advertising, citizens are dazzled into believing that freedom equates to the ability to choose between twenty different kinds of toilet paper, or that the possibility of

owning the same kind of automobile as the "boss" dissolves inequalities. Marcuse (1964[1932])

argues that at the root of the struggle for liberation is **"the replacement of false needs by true**

ones, the abandonment of repressive satisfaction" (7). The question, however, is how to achieve

this replacement in a society eclipsed by a technological consciousness—where citizens are

trained to buy every new techno-gadget that comes along. It is one thing to say that the majority

of people living in advanced capitalist countries are caught up in over-consumptive,

technologically fetishized lifestyles; it is quite another to suggest how this can change. If the

immediate interests of participants guide the effort to democratize technology, what prevents the

takeover and concretization of fetishized consumerism? That is, everyone is happy as long as

they get what he or she wants from of a particular technology. Unfortunately, what people

typically want is more! Hence the devastating environmental problems that we currently face.

The crux of the problem seems to be that our needs as well as the satisfaction of those

needs are defined by technological systems that have far removed us from nature.   We're not

like the Native Americans, in other words, who could quickly see when game stocks were being

depleted and respond accordingly. [And by the way, I'm not trying to romanticize Native

Americans here, but I think you see my point…] I want to argue that this problem of distancing

from nature is a best framed as a problem of commodification.

If it is the case that much of the environmental destruction (and threat to human health)

emanates from large, commodified systems, then moving toward less-commodified systems

should be an improvement. The way in which some environmental activists engage technology

(particularly those of those coming from an environmental justice angle) has the potential of

creating less-commodified systems, but to be effective they must better understand the

commodification process.

According to Marx, capitalist production divides the product of labor into use value and exchange value. The use value is a product's actual utility; while the exchange value, unique to the capitalist mode of production, originates only when the product of labor is exchanged as a "commodity" (Marx 1906: 84). The commodity form mystifies the productive relations that go into the product and thereby hides the exploitative labor relations that produce the commodity. The commodity form appears to take on a life of its own, with its own set of abstract regulating laws. For this reason, political economy uses abstract formulas, or laws, in an attempt to represent the actual material processes (Marx 1964[1932]: 106). This serves to mystify the estrangement created by the capitalist mode of production (Marx 1964[1932]: 109).

Georg Lukács extended Marx's commodity form from the market to all of society with his concept of reification (Feenberg 1981: 78) —the process by which relationships and people take on a more thing-like, objective quality in the commodity form. Through the process of reification, capitalism reproduces the social forms—the state, and system of laws—that support the commodity form (Lukács 1971: 95).

As a side note, Lukács' concept of reification was crucial to the Frankfurt School's development of the concept of "technology as instrumental rationality" (Jay 1973: 174). In essence, the Frankfurt Schoolers replaced the totalizing consciousness of the commodity form discussed by Lukács with the idea of a technological consciousness. His discussion of how the commodity form mystifies social relations is later replaced by Horkheimer's concept of the "technological veil" (1982[1941]). Marcuse (1964) then expanded this notion with his discussion of how a pervasive "technological consciousness" serves to establish a "one-

dimensional society."

A Theory of Technological Commodification

In a forthcoming work [in a volume edited by yours truly], Paul Thompson proposes a way of addressing this problem "technological commodification." Thompson acknowledges the traditional Marxist interpretation of commodification but focuses on the more general definition of commodity as **"something routinely bought and sold."** Specifically, he wishes to emphasize the degree of interchangeability associated with commodification.

Thompson makes the important distinction between "structural" commodification and "technological" commodification. Structural commodification involves changes in the rules, laws, or social customs associated with a particular technology. In this instance, the actual physical technology itself is not altered. Marx's discussion of wage labor is an example of structural commodification. Under capitalism labor becomes a commodity that can be bought or sold. Although "labor" itself did not change, the associated laws changed to accommodate the new capitalist mode of production. In the case of technological commodification, on the other hand, the technological artifact itself is altered. And of course, transformations can involve both technological and structural commodifications.

According to Thompson, **"goods that exhibit the commodity form tend to be alienable, excludable, rival and standardized."** By alienability he means the ability to separate one good from another, or from the person of a human being. Excludability refers to the cost of preventing others from use of the good or service. Rivalry is the extent to which alternate uses of goods are incompatible. And finally standardization is the degree to which one sample of a given commodity is treated as equivalent to any other sample.

Take the case of electric power for example. The actual physical technologies became

more standardized overtime which resulted in a reduction in cost for the consumer. In Thompson's terminology the excludability of electric power was reduced to make it more affordable to people. But in addition there were a number of significant structural changes associated with the development of electric power. The establishment of government regulated public utilities created structures that increased the average citizen's <u>alienation</u> from electric power, as well as the utility manager's ability to <u>exclude</u>. [Fortunately, all these problems have been solved with deregulation!]

Thompson's distinction between technological and structural commodification is useful with regard to citizen's struggles with technology. His four moments of commodification—alienability, excludability, rivalry, standardization—provide a way of connecting needs and interests to specific technologies and the products generated by particular systems. That is, they generate specific questions that can be asked, such as: is this particular technology going to alienate or exclude? In addition, Thompson's distinction between "structural" and "technological" commodification enables activists to target specific aspects of technological systems. It may be the case that structural issues such as policies and laws are more to blame for the commodifying aspects of a particular system, rather than the physical technology itself.

Pollution as a by-product of technological systems can be considered in this way. EJ has touched on these issues by revealing how certain communities are targeted for their perceived inability to resist. However, their efforts could be enhanced with Thompson's discussion of the four moments of commodification. They could, for example, tie hazardous by-products to those attempting to "exclude," or "alienate" from the beneficial aspects of a system.

In sum, I believe we are living in a time of great opportunity—rising oil prices, the threat

of global warming, and ongoing anti-globalization movements—are motivating citizen's to act. Moreover, activists see the connections between the over-consumption of the few and the resulting economic and environmental disparity. They also recognize that technology, particularly technology as development, plays a central role in this problem. Thus, in their effort to democratize technology it clearly makes sense to incorporate the notion of sustainability as I have discussed it here. That is, by focusing on human needs and technology as commodification.