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Ethics and Democratized Technology

1. Democratic Technology as Alternative To an Ethics of Technology

The development and implementation of new technologies is still often suboptimal from a societal and ethical point of view. Technologies may be judged to be suboptimal because they are correlated with unwanted social and environmental consequences, or because they go against cherished moral principles, either due to their consequences or because of their very nature. Better technologies can be attained only if better decisions are made in the course of their development and implementation. But how can this decision-making process be improved?

Ethicists normally answer this question by pointing to the need for moral reflection on technology and its consequences. Actors involved in the decision-making process should be equipped with relevant moral knowledge and skills, and should engage in moral deliberation and moral debate so as to ensure that the moral implications of decisions are thought through sufficiently well. Better technology will hence result from added moral reflection on technology and technological decision-making. Let us call this approach to the improvement of technology the *ethical approach*.

Within science and technology studies (STS), a different approach is sometimes taken. This approach has as its central thesis that better technology is arrived at through a democratization of the process of development and implementation. Better technology is attained if more stakeholders (social groups or actors that have a stake in the way the technology is developed and implemented) have had a say in these processes. What is needed is not so much an infusion of moral deliberation and debate into decision-making process, but a democratization of these processes. This is held to be the best way to arrive at better, socially more acceptable technology. Let us call this approach to the improvement of technology the *democratization approach* (or, alternatively, the *democratized technology approach*). Democratization approaches are found, amongst others, in the work of Langdon Winner (1986, 1995), Richard Sclove (1992, 1995), Andrew Zimmermann (1995), Wiebe Bijker (1993, 1995a, b), Johan

Schot (1996) and Andrew Feenberg (1995).

That there are important differences between these two approaches can be seen by showing that they do not need each other. Most ethical approaches to better technology do not advocate a democratization of technology development and appear to be content to leave this process in the hands of elite groups of engineers, corporate managers and others, as long as these actors deliberate ethically within the course of their professional activities. Most democratization approaches, in contrast, do not advocate moral reflection and debate, but seem to be content to let different social groups defend their interests, even if moral deliberation plays no role in their activities.

But are these two approaches really two different approaches to the same end, viz., better technology, or are their conceptions of better technology so different that even their ends are incompatible? For proponents of the ethical approach, the end of improved technology development may be technology that adheres to the Good. For the Good is commonly seen as that which moral actions aim to attain.

It may seem that for proponents of the democratization approach, the end of improved technology development is not the Good but democracy, or equal representation. Upon closer reading, however, it is clear that for many proponents of the democratization approach, democracy is only a means to still higher ends. Sclove, for example, argues that strong democratic procedure 'expresses and develops individual moral freedom.' (1995, p. 35) He holds freedom to be a highest order human value that is a precondition of pursuing other goods. Bijker (1995b) and Schot (1996) emphasize that if stakeholders are more involved in development processes, there are likely to be less negative consequences for these stakeholders when the technology is implemented. So for them, democratization is a means to the end of more acceptable technology with less negative societal consequences.

How can such goals (moral autonomy for Sclove, less negative consequences for stakeholders for Bijker and Schot) be compared to the general goal of the Good? One answer is that these are specific conceptions of the Good, adhered to by these scholars. Sclove explicitly opts for a Kantian conception of the Good in terms of moral autonomy, and Bijker and Schot seem to opt for a consequentialist conception of the Good as measured by the positive and negative consequences undergone by stakeholders. They refuse, however, to propose specific interpretations of the Good within these general parameters, or to leave such interpretations to an elite of technology developers. People should be able to decide for themselves what freedom is to them, or what consequences of technology they deem positive or negative.

The latter could be offered as a point in favor of democratization approaches. Most ethical approaches condone that what counts as the Good in new technology is not decided by the people at large, but by an elite of specialized technology

developers. But surely, it may be argued, every person should be in a position to decide for him- or herself what the Good is to them. If this is true, then a democratization of the development process is needed for technology to adhere more closely to ideals of the Good.

2. An Ethical Critique of Democratic Technology

Although there are hence reasons to favor a democratization approach over an ethical approach, there are also problems with the democratization approach that point to the necessity of an ethical approach. I will first argue that democratization approaches risk the loss of a moral dimension in moral deliberation and debate in technology development, along with a concomitant conceptions of moral responsibility, and that this loss is undesirable. I will also argue that the egalitarianism striven for in democratization approaches, in which non-experts get equal representation in the development process next to experts, is untenable. In section 3, I will then argue that an ethical approach may attain some of the goals of democratization approaches without a radical democratization of technological development processes.

I already pointed out that democratization of technology need not lead to added moral deliberation and debate. One can already see this in politics. In many negotiation and decision-making processes in politics, moral terms in the debate are lacking. The process is little more than a negotiation of self-perceived interests of different social groups. The democratization of technology could become just such a politicization, in which the debate is not about what is right, but about whether the interests of participating social groups are adequately represented. If there is no commitment of the relevant social groups to transcend their own self-interests and to seriously engage in a moral discussion about what designs are right and just, then democratized technology may make more people content, but may not adhere to any ethical ideal of the Good.

Proponents of democratic technology may try to avoid this criticism by insisting on a conception of morality according to which a moral action is simply an action that democratically reflects the interests of different social groups. They may then conclude that a moral discussion between social groups is not required for their collective actions to be moral, as long as these social groups reflect, by the interests they promote, everyone in society. However, such a conception of morality would, I claim, raise serious difficulties. I will not here even enter into a discussion of the theoretical tenability of a conception of morality that is defined in terms of self-interests. I will only here point out the practical difficulty in ensuring that those

delegates that end up participating in democratized design processes reflect the interests of all relevant social groups in society.

As Winner (1993) has argued, social constructivists tend to accept as unproblematic the very notion of a relevant social group. This also applies to the work of Schot and Bijker. They do not answer the question of how social groups should be defined, who decides whether or not a particular individual or organization can properly be seen as representing a particular social group, and for example whether large social groups should be given greater input in the deliberation process than small social groups. Democratic representation may therefore already be lost in the very process of deciding what the relevant social groups are.

A problem that looms just as large is that for certain social groups, it may be very difficult to impossible to adequately represent their interests. This is most importantly the case for future generations. As has often been observed, no one now can pretend to authoritatively know the interests of future generations. Therefore, the interests of future generations cannot be adequately represented in technological design processes. Yet, for many large technological projects, particularly those that are likely to have long-term effects on the environment, the interests of future generations are very much at stake. Next to future generations, animals, infants, and mentally retarded individuals constitute additional interest groups that cannot be directly represented. The real danger therefore exists that their interests are also inadequately accounted for in deliberative processes of which the outcome is determined by the interests of participating social groups.

I conclude, therefore, that for practical, if not for theoretical reasons, a conception of morality and moral responsibility defined procedurally in terms of processes of the negotiation of interests is untenable. Fundamental moral discussions must be a central part of the design process. It is only through placing such a moral discussion high on the agenda that different social groups will be able to transcend their self-interests and come to technological designs that are not only democratically realized, but also morally defensible.

I also want to take exception to the egalitarianism advocated by proponents of democratic technology. Most of these proponents claim that different social groups can claim equal expertise during technological design and development process, because there are no independent truths about the matters they negotiate (as technology has 'interpretive flexibility'), and because everyone is an expert about some domain relevant to the design process. I will now argue that although there are some points in the development process at which different social groups can meet as equals, experts are necessarily more competent in deciding at other points.

To defend this claim, I will argue that moral deliberation increasingly requires specialized (technological and scientific) knowledge, and that such knowledge cannot

always be easily acquired or emulated by nonexperts in the relevant area. Hans Jonas (1974, 1984) has argued that traditional notions of morality, as found in both ethical theory and 'folk morality' (the moral principles of ordinary individuals), fall short in morally evaluating many of the actions related to the development and employment of modern technology, because they presuppose a notion of action that does not fit the type of action found in dealings with modern technology. As Jonas observes, such actions are often collective, have effects that are difficult to predict and may take place far into the future and far from the site of action. Traditional moral principles, such as 'Love thy neighbor as thyself' and 'Do unto others as you would wish them to do unto you' presuppose a different notion of action, which is individual, which involves a limited effective range, and in which effects are relatively predictable. Because this conception of action is inadequate in dealing with modern technology, it follows that within the realm of modern technology a new ethics is required that presupposes a correct notion of action.

A new ethical imperative, proposed by Jonas, is then that those who develop and employ modern technologies have the moral obligation to know the (potential) consequences of their actions. Predictive knowledge of the social and environmental consequences of technologies is a moral imperative in developing and using them, and as Jonas points out, such knowledge should be 'commensurate with the causal scale of our action.' (1974: 10).

Such predictive knowledge is developed mostly by engineers and specialists in technology assessment, although social scientists and economists also regularly make contributions. Accurate predictions in assessing the consequences of technologies require the processing of large amounts of quantitative data, which are represented in complex mathematical models, graphs and tables, and in reports replete with technical jargon. During the development of such knowledge, non-experts cannot provide input, and afterwards, they can only be presented with a simplified representation of the conclusions. In short, it seems that only a small group of people can live up to the ethical imperative argued for by Jonas; others have to conclude that they are not in a position to morally judge novel designs, because they lack sufficient comprehension of their possible consequences. The egalitarianism advocated by proponents of democratic technology is thus undermined.

Proponents of democratic technology may here object that social groups without this expertise may still learn to comprehend relevant predictive models, and may, without becoming genuine experts themselves, come to have a sufficiently firm grasp of possible consequences to pass moral judgments. But notice, at this point, how responsible design through egalitarian democratic design procedures has come to require a lot more than the mere promotion by relevant social groups of their self-interests. It was found that these social groups must also engage in serious moral

debate, that in doing so, they must reexamine their own moral views because these presuppose an inadequate notion of action, and that they must gain some level of expertise in technology assessment. The democratic road to responsible design is, it seems, not a light one to travel.

3. What the Ethical Approach May Do Better

More ethical technology through egalitarian democratic design procedures is, I have conceded, possible when stringent additional criteria are met. But is it even likely that the new innovation culture this requires can be realized? Proponents of democratic technology fail to provide a convincing theory of transformation: a theory that describes how the novel, democratized innovation culture that is proposed may develop out of the current innovation culture, and how different social groups may exert influence on this transformative process.

Although there is a tendency for businesses to become more responsive to social groups in technological development, and although there have been experiments with democratized design processes, it must be considered highly unlikely that in current free-market societies, businesses will voluntarily include all social groups in their design procedures that are relevant from a democratic point of view, and not just those social group that they consider relevant in their marketing efforts. Moreover, it is highly unlikely that businesses and social groups that have expertise status in society will voluntarily accept social groups like consumers and other interest groups as equal partners in design. It also seems unlikely that governments will be capable of forcing businesses towards such democratic models, as this would mean the abolishment of the free-enterprise system, and a straightforward move towards a socialist state. It appears that no widespread public support exist for such a move.

This is why in the current political climate, the ethical approach to better technology is likely to be more successful than the democratized technology approach, as well as ethically more defensible (as argued in the previous section). It must then be accepted that even if democratized technology is desirable and should be striven for, in current design culture only some groups provide significant input into the design process. These social groups consist of corporate managers, investors, engineers, and government agents. Of these three groups, business managers and investors, consisting of employers and clients of engineers, lay down design specifications for engineers, engineers produce workable design on the basis of these specifications, and government agents have the role of regulating this process, though they sometimes serve as clients as well.

Because only the first two of these groups are in direct control of the development process, they constitute the two groups of which responsible technology development needs to be expected. The question then is how these two groups can be influenced so that they create responsible designs. This influence, I claim, can be exerted in three basic ways: by instilling moral values, by enforcing rules and procedures for responsible design, and by providing reward and protection structures to those who commit themselves to responsible designs. Let me now treat these in order.

First, instilling moral values is a task that can most effectively be taken up by schools and universities, governments, and professional societies. Schools and universities may choose to make moral education a cornerstone of the programs they offer, by offering courses in business ethics and engineering ethics, and by integrating ethical questions into the rest of their curriculum. Governments have a role in promoting moral debate and in providing information relevant for moral debate. Professional societies, finally, have a role in continuing the moral education of their members, and also in instigating moral debates. In this way, it is to be hoped that moral values are instilled in business people and engineers, both through the role models they encounter, and by being forced to think about ethical issues.

Second, the enforcement of rules and procedures for responsible design is a task that can be taken up by governments, professional societies, and businesses. Governments can regulate the design process by laws that set environmental and safety standards, and other standards considered relevant in ensuring responsible designs, and by requiring extensive tests and studies (e.g., environmental impact studies). Professional societies may draw up enforceable codes of ethics, by which their professional members are bound (Unger 1982). Businesses may also draw up ethical codes, may self-regulate in other ways, and may ensure the presence of internal procedures for considering dissenting views (Unger 1982).

Third, a reward structure is required that rewards those businesses and individuals who commit themselves to responsible designs. Governments here again have a role, in providing economic incentives for those businesses that produce technologies and perform innovative research that is judged to be beneficial to society (and by appropriately taxing those businesses whose technologies harm the public interest). They also have a role in providing adequate legal protection for employees who cannot reconcile the demands of their employers with their ethical principles, and who engage in such activities as whistle blowing and the refusal of assignments (Unger 1982). Professional societies may also provide protection by means of their codes of ethics, behind which employees and independent professionals may hide in voicing their concerns or objections. Of course, consumers and interest groups also have a role in providing reward structures, by supporting particular technologies and

denouncing others. It is moreover to be hoped that the status gained from moral behavior will also function as an incentive to behave morally.

In conclusion, although democratized technology is desirable, proponents of democratization have failed to demonstrate that their proposals are realistic and have paid insufficient attention to the ethical aspects of technology development. An ethical approach is hence necessary, and at the moment more likely to be successful than a democratization approach. At the same time, democratization of technology should certainly be promoted, not only to ensure that different social groups are adequately represented in the process, but also to broaden the moral debate surrounding technology development.

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