

# Design as an Arena of Choice\*

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*Research and teaching in two distinct professions—engineering and social science—have much to offer both students and the general public as they ponder what are actually important choices about the shaping of new technologies and social patterns. But seldom do these professions find ways to share the perspectives, experiences and strategies that inform their work. Especially interesting are choices that involve the introduction of information technology to existing patterns of work, transportation, housing, community life, and their relationship to the natural environs.*

## CHOICE IN DESIGN, INNOVATION AND SOCIAL ENGINEERING

SOME OF THE most urgent issues facing society today concern the design of emerging technologies and institutions. Rather than view these questions as opportunities for deliberation and choice, many people believe that ‘technology’ unfolds as if by an inborn necessity. How can practitioners in engineering and social science find ways to combine their understandings in ways that help the next generation of design professionals and citizens make better decisions?

Attention to design can be greatly helpful to scholars, technical professionals and citizens because it enables us to talk about choices in contemporary society, rescuing the very possibility of choice from a fatalistic view of technological and social change. These days it is all too common to hear people talking about a univocal, one-dimensional ‘technology’ said to be moving in a particular direction as if driven by an inborn necessity. ‘This is where the technology is headed,’ people say, suggesting that intelligent intervention in the process has somehow been foreclosed. But as we point to social processes of design and their tangible products, we reopen the question, making it possible to ask about conceivable alternatives in the interweaving of technical and social patterns and how those alternatives might be realized.

One does not have to look very far to find questions of this kind in crucial public debates and policies.

- The Justice Department’s suit against Microsoft was to a great extent about the politics of design in a power struggle expressed in the features of the Windows operating system.
- Debates about the social inequalities of ‘the digital divide’ have a very strong design component: What kinds of hardware and software are being made and for whom?

- The ingenious Napster file sharing program is merely one of a torrent of clever Internet designs that undercut the political arrangements of property, the very basis of our Lockean political order.
- The outcome of the 2000 presidential election seems to have been influenced, and perhaps even determined, by ergonomic flaws in the voting systems of the US democracy—an event that will be remembered as the disgrace that launched a thousand glitches.

Within countless varieties of new devices and systems that engineers design and build we see what amounts to a fundamental reshaping of our social system in which the material instruments are merely the visible edge of corresponding changes in social identities, role, relationships, and institutions. And if one includes design issues in biotechnology—the creation of terminator seeds, Roundup-ready crops, conflicts over ‘biopiracy’, public concerns about genetically modified organisms—the list of urgent issues expands even more. These are matters that technical professionals and our students ought to be aware of, indeed one that they will be expected to know something about when (as often happens) the social dimensions and social agendas in technical work surface as controversial issues.

During the past two decades the studies of sociologists, anthropologists and political scientists about design have introduced a new range of concepts and theories about both the process of design and the significance of design choices for society. By and large, these perspectives are not yet well known to engineers. By the same token, it is clear that the best thinking of engineers and technical professionals on similar topics is not yet fully appreciated by social scientists and humanists.

One of the reasons for organizing a conference on this theme is to build a bridge between intelligent people who’ve been thinking about this matter along somewhat different paths. What can we learn from each other?

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The promise of fruitful interdisciplinary discussion is undermined by a tendency in today's professions to pay attention to those whose work most closely resembles one's own. People say, 'Well, what they are doing over there is too narrow.' Or 'It's too broad.' Or they conclude that someone's work is too 'soft', on the one hand, or too narrowly technical on the other. How easy it is for we academics to dismiss other people's ideas.

Thus, social studies of design tend to broaden the range of concerns and influences that designers should reasonably take into account, for example, the multiple sub-cultures, languages and design styles that can shape activities of technology shaping at each stage. Unfortunately, the tendency toward increased broadness may not be all that welcome for technical professionals who feel that 'real' design can only occur when solvable problems are precisely specified.

How can we bridge this debilitating gap? How can those involved in design encompass the kinds of breadth of understanding that the best work in the humanities and social sciences make available without sacrificing the precision and rigor that problem-solving involves? I hope our discussions will confront this tension head on.

Some of the most urgent problems facing society today can be helpfully described as questions about design of emerging technologies and institutions. Especially interesting are choices that involve the introduction of information technology to existing patterns of work, transportation, housing, community life, and their relationship to the natural environs. Will the world of distributed computing and cellular communication amplify or repair the social and ecological ills that we have inherited from the industrial era?

Seen in this light, the stakes are high and the questions momentous. Nevertheless, it can happen that even highly ingenious approaches to design, including those that combine high levels of technical virtuosity and social scientific cleverness, drift off into triviality, ignoring the major problems that confront the world. There is a tendency among students who study social dimensions of design to gravitate toward projects that produce feature-rich toys for the wealthy, the kinds of things that might show up in the Sharper Image catalog.

For example, if you read the project descriptions of technology creation and technological design now underway at MIT's media lab, what you find are extremely exotic rewavings of information technology and everyday life, but ones that have little connection to the real needs of most of the world's six billion people. Work of this kind is lavishly funded by dozens of major corporations. It includes projects like the following kind taken from the Lab's fall 2000 catalog (I'll quote just two):

... we are exploring different role for machines—namely that of 'facilitator' for our everyday activities.

Instead of requiring dozens of mouse clicks, such a system would do what we want when we want, perhaps without ever being asked. As a facilitator, the computer would be an active participant in our activities, not just an observer/servant.

... we have developed a set of interactive nametags (called 'thinking tags') that facilitate conversation between people by telling them how much they have in common, or by providing new ways for them to share 'memes' with one another.

If one were seeking an operational definition for the term 'self-indulgent,' one need look no further. Alas, there is a widespread tendency to regard projects of this sort as bold and exciting attempts at 'inventing the future'.

Many of my students in engineering and computer science are more than happy to seek out projects of this kind in the corporate world. 'They're going to pay me all that money to be making these wonderful toys and I'll be "creating the new society" at the same time! How can I resist?'

As we talk about design—the shaping of the useful things that people encounter—it is crucial that we pay close and continuing attention to questions about ends. What are the underlying purposes of design activity? What is the larger good to be achieved? Exactly who stands to benefit? And who, if anyone, stands to lose?

Just as important, in my view, is the question of significance. Over the years I've observed academic design exercises and ways of teaching design that confront students with interesting problems and gadgets. But if you stand back and look at them, they're fairly trivial when examined in the light of major problems that face the planet and its population today.

When I go into the room and my colleagues are telling the students: 'Your challenge is to design and build a comfortable chair using this stack of corrugated cardboard,' I get very nervous. I understand that teaching design requires posing problems that students have a reasonable chance of solving within a relatively short time. Problems of world hunger and the gap between rich and poor are overly daunting topics for a three months long design studio. Nevertheless, I wonder why it is that at a time in which momentous issues that involve design leap out at us from every corner, our ways of teaching design in classrooms and studio courses so often focus on rather low-level concerns. Perhaps this conference will shed light on the matter and suggest better paths for design education.

The prevailing ideology of time tells us that society must act quickly to realize 'innovations' in response to the pressures of the global marketplace. In this process the design of new devices, systems, and services is said to be crucial to this goal. For many people the innovation has become an irrevocable destiny.

Little noticed in this enthusiasm is the fact that

'innovation' as a concept has replaced a former label, 'progress', perhaps because the earlier term assumed that unambiguous, universal benefit would flow from scientific and technological change—a belief that today seems highly problematic.

Those who study design and attempt to teach

it should recall the stern advice about 'the need to innovate' that we hear so frequently and perhaps echo to our students. What advice of similar force and persuasiveness might arise from thoughtful studies of the origins and consequences of technological design?

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