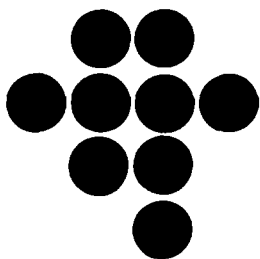


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COMMUNICATIONS  
FORUM

**Communications Technology,**

**Privacy and the Home**

February 15, 1990

Seminar Notes



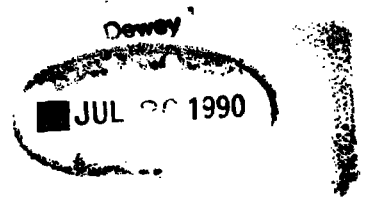
MASSACHUSETTS INSTITUTE OF TECHNOLOGY  
COMMUNICATIONS FORUM

**Communications Technology,**

**Privacy and the Home**

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Seminar Notes



Gary Marx, M.I.T, Discussant

Professor Jerome Aumente, Rutgers University

Professor Louis L. Bucciarelli, M.I.T.

Mr. Ronald Corbett, Jr., Office of the Commissioner of Probation

Oscar H. Gandy, Jr., Annenberg School for Communication

Antonio J. J. Botelho, Rapporteur

This first spring session of the forum addressed the fearful big brother possibilities of the development of emerging communications technologies. Gary Marx, Professor of Sociology, Department of Urban Studies and Planning, M.I.T., opened the session by saying that one way of looking at the social impact of a technology is to look at its impact on a particular social institution like the home. Some of the economic, the technical, the cultural barriers that traditionally prevented information from either leaving or coming into the home are weakening. Electronic umbilical cords and invisible leashes send ever more information outside the home. The home is more integrated into the broader society and more interdependent with it. In the case of information gathering, the technology has become more penetrating, more intrusive and more precise. We are becoming a transparent or porous society which actions, feelings and thoughts are increasingly made visible.

The first speaker was Jerome Aumente, Rutgers University. Aumente's presentation turned around the videotext in the home. To begin Aumente provided some indication of the extent of computer-based information coming into the home. As far back as 1975, there were only 375 databases primarily used by research institutions and corporation. Today there are over 4,000 databases reaching out to the general consumer.

Videotext is in fact the comic book of the online databases. Information put together in the simplest format and made available to general audiences. Database information has become more friendly and accessible to the general home consumer market. Videotext refers in particular to a frame-by-frame information presented in a very simple three-tiered structure that anyone can access in a easy step-by-step fashion. It is user-friendly, not to say user-enticing as in the case of Prodigy, put out by IBM and Sears. Another videotext services is the Dow Jones News Retrieval (1/4 million users).

Aumente next suggested that we should be paying more attention to audiotext services, voice mail. All these takes are starting to mesh together. Aumente's main point was that we still have time to monitor and evaluate the evolving kinds of situations. In order to give an idea of what is happening in the electronic publishing area, which includes videotext and other related services, Aumente said that the American Newspaper Publishers Association (ANPA) has been very much concerned about what kind of access they will have to this new media and has been very active as a union. They have been monitoring and doing experiments in the area, as well as being one of the main players in the MFJ. Moreover, between 1964 and 1985 the electronic publishing sector has grown 18% annually, twice the GNP growth rate; the number of databases has reached 4,000; the information industry in this area employs some 5.1 million people; residential videotext reaches 1.7 million households and in the last year the market increased by 45%; business electronic publishing has 1.5 million customers and will generate revenues of \$ 15 billion by 1992 (\$ 7 billion today). In contrast, the toy business generates \$ 13 billion a year and the videogame share is \$ 4 billion. At other countries, Minitel in France has some 4 million households and 12,000 service providers.

Aumente then noted that one way to see how all that is coming together is to look at Judge Greene's decision on AT&T last summer. The decision will allow AT&T, after a seven year ban, to enter electronic publishing. It is quite clear that AT&T moves will have a

great impact. The RBOCs which have 80% of the local telephone service have been banned from perpetuity from entering the electronic publishing area and are fighting this hard to turn things around, having established a \$ 20 million fund to do so. They are invoking the first amendment and they are pushing two bills in Congress reversing the decision. The ANPA is strongly against the RBOCs coming in, arguing among other things concerns about privacy. The argument is that if telephone networks are allowed to come in there is a possibility through networking that detailed profiles of all aspects of consumer telephone services could potentially be concentrated in one computer. This contrast with the decentralized set of databases today. ANPA argues that the 1986 Electronic Privacy Communication Act will be totally jeopardized by this centralization.

The Videotext Industry Association (VIA) very early on was aware of the problems of potential privacy. It has come out with a voluntary privacy code saying that customers must know what the information is being used for, records should be destroyed if they are not needed for internal operations of videotext service; videotext company has to notify customer if anybody requests information.

Next **Aumente** turned to idea of the naive user. In the beginning of the database business the users were informed people. With the opening up of the system to a group of naive users dangerous privacy issues arise. For example, there is a senior citizen network, there is a kids network through AT&T. The problem is that this type of users may not be aware that their conversation is in an open system. They think they are in a private closed conversation system. The problems become more complicated in a place like Santa Monica which has established an online information system for all its citizens that allows them to talk directly to city hall, to engage in conversation with city councilors. This opens up the possibility of a sponge of information referred by Gary Marx above, but may also attract people that do not know how to play or how to protect themselves, the naive user. What they may think it is innocent or privileged messages between them and a building inspector or a city councillor can in fact be accessed by anyone in the system. Another aspect of the naive user turns around the distinction between information that is file drawn information and information that is aggregate computerized access information. The same information, when in a scattered form may not be dangerous in the privacy sense. But once a computer is able to treat this information in an aggregate form and show patterns over a period of years, you may have a body of information that borders on intrusion of privacy.

Another aspect raised by **Aumente** was the possibility of creating an internal road map of the user. It is now possible to go into a system that is being used by someone who is accessing news and transactional information and find out what people read, how they read, what they chose not to read, what kinds of transactions are made daily, what kinds of messages are left in an electronic board. In short, this creates a pattern of information, a look inside someone's mind that the person may not be willing to be open to the marketers.

**Aumente** closed with some remarks about fiber optics. Today, most of the telephone system is still largely based on copper wires. But as fiber optics comes into place over the next few years, the customer will have access to a whole new range of information mix that will allow

people to find out in a profile way a lot more about what the customer chooses and don't chooses.

**Aumente** concluded by expressing his hopes that we study and continue the dialogue while the silly putty is still soft allowing us to give some shape to it. Special attention should be devoted to: 1- the naive user; 2- to a redefinition of our privacy concepts, and 3- to the role the telephone industry should play in all this.

**Gary Marx** called attention to recent telephone technologies out there with an impact on privacy: 1- caller ID; 2- telephone use patterns information, and 3- gadget that lets someone to call into someone else's phone, disconnect the answering machine and turn it into a microphone, and 4-potential of political surveillance as the use of electronic address books spreads.

**Professor Larry Bucciarelli**, Program in Science, Technology & Society and Department of Civil Engineering, was the next speaker. **Bucciarelli** discussed monitoring home electric energy use. He began by saying the project supported by the New England Power Service Company, aims to provide information about electricity use to the customer online, and in real time. The project is pilot program involving 30 customers in southern Rhode Island. The purpose is to display the information using an off-the-shelf and easy to use inexpensive laptop linked to a digital/analog converter. The display of rate of current energy consumption is refreshed every 3 seconds. The user can call up other displays of cost and total daily energy consumption. The motivation behind the project is to make the customer more aware of the electrical energy demands of different devices in the home. It is a learning experience that allows a peek into the house behavior about electricity.

This is an experiment to determine how people's uses of electricity changes, if they are better informed. The data that is sent back to the utility company includes the customer ID, date, time, 15 minute energy consumption values, and the number of times customer calls up the different displays. In short, besides the technical information about electricity use, the utility companies also collect information on the pattern of use of different appliances. Is this information an invasion of privacy? Not really, because all information collected is available to the customer. Another question related to privacy is the notion of information itself. What kind of a thing is it? Is this information a type of commodity we possess? Is it a commodity we can give away, sell?

**Bucciarelli** went on to explore the importance of the aggregate information. On the one hand, treating information in an aggregate form is a way to avoid invasion of privacy. On the other hand, when we aggregate data we reduce the individual to but a few characteristic dimensions. That aggregate then becomes some unit consumer or purchaser, and our interest shifts from the individual to his or her purchasing potential, or energy needs. Is there anything wrong with that?

**Marx** noted that this device contrasts with another device that is placed outside your home and monitors what goes on inside. The nice thing about this device is that it is somehow participatory. It raises lots of interesting questions. In Eastern Europe, it has been

suggested, those devices would have helped a government identify who had a hidden printing press or a photocopying machine. Even in the United States, recently the National Electric Association was sponsoring the training of utility companies' agents with respect to how to identify people involved in drug processing through a pattern of energy use.

The next speaker was Ronald Corbett, Jr., Massachusetts Probation Department, Office of the Commissioner of Probation who talked about criminal justice and home electronic monitoring. Corbett, Jr. began by setting the stage for the presentation of a short video showing the state of the art in the electronic monitoring movement in corrections.

The main problem in institutional corrections prisons and community correction probation paroles for at least ten years has been prison overcrowding. Specially in Massachusetts the prisons have been extremely overcrowded leading almost to catastrophic conditions, with prisons operating at 200-300% of their capacity. Correctional officials have been looking for a solution to that problem which boils down to money. It is very expensive to build and maintain prison facilities. So there has been a search for less costly alternatives that could be developed quickly and used with a wide variety of offenders. Beginning in the early eighties, there was talk about the house arrest option: to use the individual offender's home essentially as a place of custody, where they would be detained or incapacitate and therefore prevented from committing their typical crime. By 1985, the electronic version came about, the first generation being the wearing of tamper-proof anklets, and bracelets and necklaces that essentially would send an electronic signal to a receiver placed in the home by correctional officials on a phone line and electronic linked on-line with a computer in the probation office. What this first generation system did was to let the probation department know if the offender went outside of a radius of 150 feet from the transmitter, from the home; what they were not allowed to do.

The video showed a second generation system manufactured by the Mitsubishi Corporation and is about least 3 years old: the Mitsubishi Electronic Monitoring System (MENS) for Home Detention. MENS automates conventional home detention programs and provides visual verification of client compliance. The system is based on a visual telephone display verification linked by telephone lines to a computer-based system which does not tie up officers or administrative time. Only in the case of non-compliance along the random compliance verification pattern is the officer warned. The system also provides a device for effectively and accurate monitoring of alcohol-related cases, linking the client's identity to the alcohol level in a single evidential visual record that is stored in the computer.

Next, Corbett, Jr. raised a couple of issues. The first was in relation to how far can we go; a matter of technology. The second question was how far should we go? In relation to the first issue there are major enhancements right around the corner for full home monitoring. The current systems are pretty effective, but there is a feeling in the legal community that people can fall through the cracks. Thus one solution manufacturers are looking into is an inexpensive constant surveillance system based on TV cameras and cable an audio monitoring. Further down the road could be surveillance systems to deal with certain kinds of violence such as domestic violence, child or wife abuse. Along these lines the technology could be developed to monitor certain biological and physiological (sexual arousal for

example) markers that would allow for remote early warning monitoring through electronic systems. There has also been discussion about applying these systems to offenders with AIDS. As far fetched as some of these might seem the financial and economic imperatives are strong to provide powerful incentives to technological and commercial developments.

In relation to the second issue, **Corbett, Jr.** pointed out that there is a couple of often mentioned restraints. First, what does it matter how invasive and intrusive it gets provided that it is not more invasive and intrusive than prison and incarceration goes. The argument here is that we can go as far as prison goes. The second constraint is the 8th amendment which prohibits "cruel and unusual treatment." The difficulty here is that these are uncharted waters of what unusual treatment might mean in face of these technological developments.

The last constraint, perhaps the most important in this context, is what does this all mean for our traditional notion of home. It seems that we are turning our traditional senses of private versus public realms inside out. Perhaps there is something to the traditional notion that the home is sacred in some respects, that it is a sanctuary.

**Gary Marx** then commented that this type of technology could also be applied in a suggestively benign manner to non-criminals. Another general point about information gathering and overkill is that it can be very precise but it is also gross. Thus if you do room monitoring you just not pick up the person you are adjudicating but everybody else.

The next speaker, **Professor Oscar Gandy**, University of Pennsylvania, discussed recent development in marketing research in the home. His argument was that although the techniques discussed are not necessarily new, they now allow marketers to do things more quickly and efficiently, ultimately generating important changes in society. Telematics system increase the speed and the complexity of the information that can be gathered. An the changes in our ability to see, to track, and to target must change the nature of the social relations touched by these activities. The pursuit of efficiency in the information age is not going to stop at the doors of the more creative advertising people. They will have to become more efficient as well. Advances in marketing database technology will provide a combination of precise data about individuals with message systems capable of isolating segments and clusters and neighborhoods or even individuals within households.

**Gandy** stated that using commercially available information about consumers these new marketing systems are being developed to associate static personal information and attributes with changing behavior by building profiles by associating demographics, psychographic, and then combined in geo-demographics. It is possible among other things in this technique to identify individuals that depart significantly from the demographics of a region, the so-called urban pioneers. Database marketers predict the behavior of their target customers on the basis of these models which examine the relationship between a person, a product and market attributes. Customers in a database can be ranked on the basis of the model assessment of the likelihood that they will give a favorable response to an offer, for example. Those high on the list will be approached, those low on the list will be ignored.

Privacy concerns, Gandy continued, emerge when we consider how the information used to calibrate these models is gathered. Broader social concerns emerge when we consider the consequences of the application of this data. New lists available from commercial vendors are very precise and somewhat awkward, including "Sassy Seniors" and "CD investors." Sources available to marketing services are very flexible in terms of merge, additions, and even allows address correction based on the US Postal Service address correction files. People have even used customer profiles to develop models to direct the dispatching of taxicabs on the basis of prediction of profits. Advanced bar codes are one of the most promising technologies for tracking specific customer prospects. Coupon with bar codes containing customer information distribution is the wave of the future in tracking customer and in identifying customer behavior and product preferences. The spread of cable TV, allows even more specialized coupon promotion. The privacy issue here is that the people involved in these experiences are often not aware of what is going on.

The telephone will be increasingly the focus of the privacy debate. The usage of the telephone for a variety of transactions can potentially generate consumer profile information which will generate, still more telephone calls. The use of the telephone to gather consumer information usually without their informed consent represents another privacy concern for the telephone industry.

Currently, there are no regulations limiting how much information can be included about the persons on the lists generated by telephone carriers. One thing to look into is what are the competitive and privacy implications when conglomerates with different lines if business start doing cross- marketing with the various lists of transactions data.

It is not totally clear what is the customer right to a transaction. Inbound and touch tone telephone can be used to gather market data.

The question, Gandy raised is do individuals have the choice to be exposed to these marketing ploys? The poor will not be able to pay for this type of information. Advances in technology will allow sophisticated marketers to assign specific 800 numbers to special clients. "Prodigy" was really designed to be a marketing tool, as it records all viewing and allows the development of customer profiles. More sophisticated passive TV audience measurement systems go beyond current passive systems to determine how many people who is actually watching and who they are. They will also allow more active audience participation in bar code schemes.

In conclusion, Gandy suggested that the drive to rationalize the system linked to the general pursuit of efficiencies within the market system raise critical issues about control of a person's information. Principles of informed consent have been developed to protect data subjects in medical experiments. Similar principles might be developed to protect the interest of data subjects in these marketing experiments. Changes in the market and in the nature of science and technology also have profound implications of what remain our egalitarian principles. The very purpose of contemporary marketing research is to facilitate discrimination. Struggles in the political realm to make certain forms of discrimination illegal stand to be swept aside by systems which have discriminations as their primary goal. Electronic redlining is an excluding mechanism. While segmentation and targeting may be rational and efficient in terms of the goals of a particular organization or industry it may be irrational, dysfunctional, and ultimately destructive for a society when viewed from a



longer social perspective.

### **Question & Answer**

The first question addressed the implementation issue of the correct labelling of information and advertising, with disclaimers similar to ones found in cigarette packages about the use to be given to the information being gathered. **Aumente** agreed that such a thing could be implemented and supported its correctness. **Gandy** picked up the notion of naive users to suggest that we are all naive users and therefore the notion of informed consent is key to the continuation of these experiments. **Aumente** added that there are already groups of journalist debating the ethics of "database" journalism.

The second question asked why there is so much emphasis on targeting instead of asking the individual what he or she is interested in. **Gandy** noted that the spread of 800 and 900 numbers services increase the customer's ability to request the information that you are interested in. The problem in regard to privacy is to reach an agreement about the information generated as a result of these inquiries. **Bucciarelli** commented that part of it may be rooted in the notion that marketers like engineers want to remain in control. If you give the consumer some choice he is liable to surprise you, and the marketer as the engineer does not want to be surprised, because it runs counter their professional mentality of control. **Aumente** added that lots of system out there doing inferential analysis about customers to select the information to be provided to the individual.

The final question raised the issue of personal privacy and computerized data protection in Western Europe. **Aumente** said that in Eastern Europe, and even in Spain, there is a clear chalkboard to write on in a lot of ways. There is an opportunity for them to learn from our mistakes. Technology there is still behind policy, in contrast with the situation in the US.