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WHATEVER HAPPENED TO THE INTERACTIVE  
MEDIA REVOLUTION?

December 7, 1989

Seminar Notes

**MASSACHUSETTS INSTITUTE OF TECHNOLOGY  
COMMUNICATIONS FORUM**

**WHATEVER HAPPENED TO THE INTERACTIVE  
MEDIA REVOLUTION?**

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**Seminar Notes**

**Diana Gagnon, ACTV**

**David Lockton, Interactive Network, Inc.**

**James Sorce, GTE Laboratories**

**W. Russell Neuman, MIT (Organizer)**

**Antonio J. J. Botelho, Rapporteur**

This session of the MIT Communications Forum brought together speakers with diverse experiences and outlooks in the media business to discuss the promises and achievements of interactive media.

The first speaker was Diana Gagnon, a former Media Lab post doctoral fellow and a Ph.D in Education, Harvard University, currently at ACTV. Gagnon began by asserting that interactive TV is alive and well, but still clearly in its infancy, with many competing different technologies. Although most of these technologies are not very sophisticated, they are very important for making television in the home more intelligent.

Gagnon elaborated that the major distinction in the field is between play along or participatory systems and video manipulation systems. In the first category there are three main types: simulcast (IN, PBS), encoded signals (Mattel, Inc.), and TV/Telephone (800 numbers). In the second category there are two main types: video manipulation systems (TV action affected by viewer, e.g. Wheel of Fortune) and interactive video systems. The former can be subdivided between those that can be delivered as services and those delivered as pre-recorded or stand alone units. In the area of pre-recorded there is interactive videotape (Interactive Vision) and optical media (hypermedia approach). In the service delivery category there are those that are broadcast (Tie In Network and Syntronics) and interactive cable (Mainstream, Telecast, ACTV). Gagnon noted they are very different and provide different features, and that their importance lies in the fact that the viewer

affects what is on TV.

**Gagnon** went on to talk about ACTV, which is expected to reach the market in 1990. The general idea of ACTV is to allow the viewer to affect what happens on a whole channel of programming. The service will be offered as a pay service on cable in which the subscriber gets a remote control with four buttons that let the viewer manipulate the programs. For example, a viewer could pick one's own exercise show and personalize a whole program to one's taste; one could pick movies or rock videos. Showing a demo tape, **Gagnon** noted that: there is no limit to the number of people that can interact, the ACTV remote activator allows viewer chose a star in a game show or a sport event in a competition, and can offers advertisers demographically targeted commercials, as well as card game shows and video game on TV.

ACTV now, **Gagnon** said, has 300 hours of very different shows. In relation to targeted advertising, the system will be able to keep information about who is watching what and the viewer's profile, gleaned from the program selection. The system would eventually become a network with shows being produced elsewhere. The objective is to make TV a little more intelligent and make viewers more active, by forcing them to make choices in a dynamic relationship. In the long run, **Gagnon** concluded, these could be the first steps towards what would eventually be a hypermedia environment in the home. And as these technologies are implemented their impact on broadcast will make people more creative in design and production.

The next speaker was David Lockton, President, Interactive Network, Inc. (IN), which he founded based on a patent received in 1986 for interactive television system. Lockton began by expressing his feeling that we are at the threshold of a birth of an entirely new industry.

The aim of IN is to establish a standard for interactivity, a must in a mass medium. In order to do that two basic requirements have to be met: the technology has to meet the functional requirements of the standard and the strategic and economic needs of all participants are satisfied.

The functional requirements will be met by IN's system -- Interactive Television or iTV-- in several ways: serve every household, insensitive to the number of users, works with existing programming, secure (for awarding prizes), and consumer benefit exceeds cost. The main iTV participants are: advertisers, programmers, broadcast & cable networks, telecommunications & consumer electronics industry, the interactive network, and the consumer. The iTV basic patent describes a system wherein an unlimited number of people may be viewing an event in their home, signals emanating from that event (the Superbowl for instance) are uplinked one way that contains information such as the ball was snapped or the play was a deep pass to the right, all in a one to one base, carried around the country in a satellite distribution network. The information is brought to a central area where is compressed, encoded and uplengthed and is sent around the country where it is broadcast into the home wirelessly (either through the vertical blanking interval of the PBS network or an ad-hoc network of FM stations linked together). At the conclusion of the event the viewer accesses a telephone line in which the information is collected into a packet network, designed to handle Visa and Mastercard authorization, to determine who won in the viewers

perception. At the end, the information is broadcast back to the participant viewer to tell how did he/she perform.

According to **Lockton**, market research (Exhibit 1) identified four categories of programs with great potential for interactivity: game shows (**Jeopardy**, **Family Feud**), video voter (**Miss America**; **Murder, She Wrote**), news-oriented programs (**60 Minutes**), travelin' trivia, and most importantly, competition based on live sports events, which is believed to have the greatest potential to drive the terminal into the home. The target market for the iTV system has been characterized as the 18-54 age bracket household and with over \$ 40,000 in income, very likely towards sports events or quiz shows, and willing to pay \$ 120 or more per year for a subscription and \$ 300 or more for the device. Altogether the target market adds up to 6.4 million customers or 6 audience share points. He believes that the trends behind the very positive acceptance are: baby boom, "cocooning", home electronics acceptance (along with saturation of VCR market), and home entertainment expansion (favored by the explosion of the video game market). Furthermore, networks and cable companies concern about the decline in viewership overall will aid the development of iTV.

Next, **Lockton** noted that the technology behind iTV already exists and the system implementation (infrastructure, agreements) is already being carried out. It is expected that by the end of 1990 the system will be in place nationwide. The main future implication, according to **Lockton**, is that the iTV system allows the delivery of mass amounts of data cheaply with a low fixed cost. Moreover, iTV may revolutionize the nature of television advertising, by allowing consumer initiated advertising and localizing commercial

promotions.

The next speaker was James Sorce, Manager, Service Concept Design Department, GTE Laboratories. Sorce holds a Ph.D. in Developmental Psychology and has worked at Bell Labs and Bellcore.

Sorce's presentation was on information gateway services, especially focused on audiotext and videotext gateways provided by telephone companies in mass consumer markets. Sorce's premise was that the current gateway trials are doomed to failure because they keep repeating the same design mistakes, they are not providing the kind of information important to the end user. And even in those cases where the information is being provided, it is not being done in a manner that is superior to other alternatives. The problem, Sorce asserted, is that the RBOCs are not doing an adequate job of being end-user (customer) advocate during the development of the services.

Sorce described a gateway service as an electronic mall of on-line information (news, weather, sports, etc.), transaction (banking, travel reservations, shopping, etc.), communications (E-Mail, chat lines, bulletin boards, etc.) and entertainment (jokes, games, restaurant guides, etc.) services offered to the mass consumer market by telephone companies. Past gateways have spent a lot of money on development and have hit dramatic failures (Times-Mirror, \$ 30 million loss; Knight-Ridder, \$ 50 million loss). Industry experts have identified five major reasons: affordable consumer terminals, not available to masses, price too high to encourage consumer trial and frequent usage, user interface design, lack

of information providers and lack of public awareness. Some of the more recent RBOC gateway trials (Exhibit 2) are attempting to address these problem areas. Sorce, however, skeptically asked if the RBOCs have really learned from past mistakes. Sorce's ironic answer was that the most talked about trial, Southwestern Bell's SourceLine (Houston) has seemingly addressed the five problems above: they gave away 12,000 terminals, charged no subscription fees and low usage charges; small, easy-to-use data terminals; wide range of service offerings; and strong marketing commitment. However, Sorce posed the questions: What happens as the free trial goes away and people start being charged? What happens when Southwestern Bell really has to start making money and show a profit for all the money they put in development? His answer was that even if these five problems go away there remains a problem of whether the services really have a value to the user. For Sorce, the key service design problem is providing information that is important to consumers and delivering the information in a manner superior to competitive alternatives.

Sorce provided two hypotheses to the question why nobody is looking out for the consumer in the design of services. One is that the RBOCS may not really trying because they have no incentives (MFJ) and believe that it is the responsibility of the information service providers and of the market to decide. Another is that a lot of the RBOCs are trying to understand the consumer, but are either making design based on common sense, or are employing poor design tools.

Sorce then offered two examples of service design problems in electronic shopping: Teleaction (J.C. Penney/GTE's Mainstreet), and The Talking Phonebook (InfoPlus). J.C.



Penney's Teleaction is described as an electronic shopping mall containing large department stores, specialty shops, and related services; which requires no special equipment in home and prides itself on ease-of use. After showing a video about the system, Sorce commented that there does not seem to be any significant advantage of Teleaction over the traditional shopping catalogue. The gateway worked initially but died last October (\$ 40 million loss). The next example Sorce showed was InfoPlus' Talking PhoneBook, purportedly a complete yellow pages directory combined with telephone access to specialized recorded messages to specialized recorded messages produced by local advertisers themselves. Again, the issue raised by Sorce was that it was not really providing the detailed information that the customer really wanted, and the quality control was rather poor.

Sorce's conclusion was that information gateways need consumer advocates. Gateways must not relinquish control over service design and production. Furthermore, there is a need for better tools to ensure that consumer value gets built-in up-front, during design. These tools are going to be much more quantitative analyses of what customers want. And there is also a need for development and evaluation of prototypes to figure what the customer wants before large sums of money are spent developing large field systems.

### Questins & Answers

The first question probed what it is necessary to create true interactive TV. Gagnon said that on the technology side what is needed is the ability to bring greater bandwidth, more intelligence, to the home. On the consumer, there is a need for an audience educated enough to conduct searches. One of the benefits of the early steps presented here is that

they train a passive audience into making choices, which will be required by the future hypermedia approach. Sorce added that the fiber optic to the home, mentioned by Lockton as part of the evolutionary process, will probably happen with radical new services in the entertainment area, new entertainment offerings will help convince people to pay for the high upfront costs of true interactivity.

Responding to a comment on the lack of pre-selection in the electronic shopping experience described, Lockton said that one of the most exciting developments is the electronic classified service. An electronic box in which one puts all the things one wishes to buy with the respective price ceilings. The service will then send through the data channel all the information pertaining to the choices published in all American newspapers which is printed out at one's home terminal at a very low cost. The same applies to news and intelligence business. But before we get there, Lockton remarked, there is a need for entertainment to drive the diffusion of the system into the home. Sorce added that the way consumers want to shop is diverse and the lack of success of shopping services is not due to technological limitations, but rather a lack of understanding of how consumers prefer to shop. There is also an information provider problem if one tries to provide a "consumer reports" type of service, because once the screening of pre-selected choices gets going consumers will quickly identify the lowest price provider, and other medium/high priced providers will drop out. The next comment criticized the narrowness of the market in the experiences underway and asked why aren't the Canadian and European markets included. Lockton response was that there are European partners in all of these interactive experiments. In Canada, interactivity is technologically ahead of the United States. Neuman added that in Europe and in Canada

national governments are more active in providing infrastructural development. **Gagnon** remarked that ACTV's approach is rather broad going from children to senior citizens and the system is already being aired in Montreal.

The next comment suggested that there are three major value added types of things with potential for exceeding existing alternatives: 1-extreme time or update value (weather, sports scores, etc.); 2- brokerage or "matching" (offers a functionality that does not exist); and 3-more user decentralized control in the way of choice. Currently, user control systems emphasize a quasi-passive mode. What is missing is a user control of the filtering, or a pre-filtering by the user. **Gagnon** replied that the idea of pre-filtering should be encouraged and noted that there is also a whole range of interactivity that should also be pursued. **Lockton** said that iTV's network objective is exactly to allow the user do the filtering of his/her own needs.

Responding to a question about the lack of competition in iTVs market, since it is based on a patent, **Lockton** said that iTV is not using its patents in a restrictive way, hardware manufacturers and programmers are licensed free of charge because the objective is to establish a standard. **Sorce's** reply to a question on the likelihood of letting the cash rich RBOCs into the interactivity game in order to ensure long term commitments was that GTE, like most RBOCs, is advocating for that, but that even if granted permission to become information service providers, the RBOCs may not have the consumer-oriented design tools to do the job right the first time. Asked to comment on French Minitel's experience and its lessons for the US, **Sorce** said that the French experience is very different

from the systems in the US. The lesson to be learned is that in France a need was created by constraining the alternatives for telephone directory and that the service expanded in other directions (although 50 percent of the usage still is for directory assistance). Based on usage, it is predominantly a telephone directory service with some information and entertainment elements. Neuman added that about beyond directory assistance, 80 percent of the usage is concentrated in 20 percent of the users. Lockton contrasting the French success with the US videotext failure, indicated that the creation of a critical mass in France led to the appearance of over 2,000 independent information providers in numerous niche markets. Moreover, from a zero base up to 20 percent of the Minitel usage is for games. In the US there is no model for a telephone company to do something like that. Nintendo has sold over 200,000 modems in Japan, creating an infrastructure for other banking and financial services. These areas are well covered in the US by various services but there remains a need for a critical mass of installed base of hardware. Entertainment may do the job because often consumers suspend analysis when shopping for entertainment.

The next comment stated that there is a need for RBOCs to provide greater opportunities for information providers, perhaps make access free to information providers to develop new services which attract customers or set a monthly fee for customers to access a wide range of services. Oracle in England is successful reaching 4.5 million homes. Lockton replied that this is the classic chicken and egg problem, one the installed base is there advertisers will flock, but until the base grows companies will have to spend a lot of money. Neuman remarked that the thrust of the comment has been addressed both by the concept of a gateway (local monopoly operating companies connecting to multiple services) and the

regulatory concept of open architecture (centralized switch and multiple vendors and ITs providing both technology and information).

A questioner asked what have ACTV and iTV done to assure that the interactivity is in the right way and in the right place. Gagnon's responded that ACTV is about to go into a pilot test in 300 homes and the 300 hours of programs produced made extensive of our knowledge about television content and programming. Lockton remarked that the only way to figure it out is to try it out on people and constantly modify, what is made easier by the feedback mechanism incorporated in the system.

The last question commented that the promises of interactive television have been around for quite some time and asked what is fundamentally different today that makes the systems and products economically viable. Lockton said that one of the oldest experiences, the Cube experience in Columbus, Ohio, did not fail because interactive entertainment was of low interest. American Express axed Cube because it cost 40 percent more to lay the 2-way cable and maintain it. The iTV system feels it will succeed where cube failed because it does not get involved in programming, but works with existing television hits. Gagnon concluded by saying that the older generation of interactive television, Cube for example, choice was not really personalized whereas in the new generation there is a lot more localized intelligence which allows the user to do a lot more of the filtering process.

# RBOC Videotex Gateway Trials

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Bellsouth

***Transtext Universal Gateway***

Atlanta (52 ISPs)

Since 8/88 - 1,000 PC/modem homes

Nynex

***Info-Look***

Burlington, VT. Downstate NY, Boston

High concentration PC/modem homes

Requires Nynex Calling Card to access

Bell Atlantic

*[No name yet]*

Washington (70 ISPs), Phila. (50 ISPs)

400-500 users/190,000 homes (.2%)

Increasing advertising & "free trials"

U. S. West

***Community Link***

Omaha/Council Bluffs (64 ISPs)

Starting 11/20/89

Southwestern  
Bell

***SourceLine***

Houston

Early returns -- beyond expectations!!

Call volume increasing >customer base

*Learned from past mistakes?*

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## Market Potential

Sports	60,500,000
Quiz	79,400,000
Home Producer	78,400,000
Video Voter	68,600,000
Travelin' Trivia	80,600,000
Any of the concepts	111,100,000



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