To: Alan Kay January 10, 1983

From: Scott Fisher, Bob Stein

Re: Videodiscs

Our goal here is not to propose a grand Atari videodisc strategy. A lot more groundwork has to go on before that can be done well. Our purpose here is simply to offer some suggestions as to how Atari can start to come to grips with a complex of issues that must be considered and get started.

Why is trying to understand the videodisc question like wrestling with a greased pig? They're both big and slippery. With that caveat in mind, let's go!

Part of the difficulty in understanding videodiscs is the potentially broad range of applications and consequently the greater number of markets the technology intersects with. Videodiscs are so many things to so many people.

-- To the movie industry videodiscs are a vehicle for delivering movies to individual homes in a hard-to-pirate medium.

-- To record publishers it is potentially the future of the record industry.

-- To game designers it may be a viable short-cut to high resolution graphics (at least for backgrounds).

-- For people in the knowledge game it holds out the possibility of an interim solution for the dynamic multi-media book.

-- To computerists it's a medium on which to store vast amounts of digital data or equally impressive amounts of "visual" data in the form of pictures; sound too.

Assumptions

1. This memo is predicated on the firm expectation that videodiscs constitute a viable consumer technology with wide-ranging entertainment and learning applications and therefore, are a key technology in Atari's future.*

2. What You See Is What You Get (at least for a few years)!

   Whatever may be in the labs, the technology has reached a plateau and short of minor improvements (more powerful motors, faster seek algorithms, sturdier mechanisms, etc.) for the next two years or so the player base (both in terms of the consumer market and what might be available to coin-op) will be made up of machines basically like those we have today. Multiple heads or full-frame buffers, sound over still, etc. are unlikely to be generally available at reasonable cost before 1985, if then. (We're considering the RCA "interactive" player in the "already seen" category.)

3. We're Real Early On the Learning Curve!

   The number of commercial videodsics whose content was designed and produced originally for disc can be counted on one hand. The number of consumer discs designed to be controlled by a human through a microcomputer is nil. We don't even know of any in the planning stages. This is not said to create a sense of confidence at Atari that we can wait indefinitely to get into the market, but to emphasize the point that we (humanity, not Atari) have had precious little experience with the medium and many of its most interesting uses are likely not to have been thought of yet.

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* Lest there be too much skepticism about the viability of the consumer videodisc market (especially given early press accounts of supposedly dismal sales), it should be pointed out that videodiscs enjoyed the best first year sales of any big-ticket item alone. Consider the following statistics: In the first year RCA sold 12 times as many videodisc players as all manufacturers of black and white TV sets sold in the first year. When compared to color TV sets the number is even more impressive - 16 times as many videodisc players the first year. (We're talking units, not dollars.) In terms of dollars, the first year sales of RCA players and discs exceeded the combined first year sales of b&w TVs and color TVs, and VCRs by 90 million dollars. And all this with a minimum amount of software. The Milton Berle (credited with launching the mass TV market) or Visicalc (doing the same for micros) of videodiscs has yet to appear.

Assumptions Cont'd

4. Videodiscs are a subset of the broader video question

The advent of the videodisc occurs in a broader context. We are on the verge of significant developments in the field of video itself - high definition TV, 3D, and digital TV are all on the way within the next 10 years. Also, the courtship between computers and video is developing apace - computational video is the wave of the future. A correct videodisc strategy must be developed in this broader context. For example, while in one sense videodiscs are viewed as a kludgey, awkware technology, transitional in nature on the way to all digital picture creation, it is clear that if you want to get a headstart in the area of interactive video (both in terms of leaning how to do decent programming and in terms of the marketplace) videodiscs are the only way to fly.

Points and Recommendations

1. Applications should be the driving force behind hardware decisions.

A lot of the discussion at Atari re: videodiscs has centered on the question of hardware (wish lists of modifications, laser vs. capacitance, etc.) On the whole these discussions seem premature in that they tend to be taking place in the abstract, that is without a clear idea of the applications the hardware is to be used for. We suggest that major decisions be postponed until we have a major brainstorming effort in the area of potential applications. This is especially important given the various uses the different divisions may come up with. It is quite likely/possible that coin-op, CED, and HCD may have quite different hardware requirements. In addition there are many exciting applications which may transcend the products we associate with the various divisions at this time.

2. Good videodisc programs will represent a synthesis of the visual storytelling skills of the film maker and the interactive branching knowhow of Atari software designers. To get to this synthesis, the filmakers and software designers will have to learn each others vocabularies and perspectives. Lucas, Spielberg and other filmakers should be brought into brainstorming sessions and project planning from the beginning.

The task and importance of building up experience in the videodisc programming medium shouldn't be underemphasized.

3. Many parallel efforts/no czars, maybe ombudsman

Given that we are early on the learning curve it makes sense to consider supporting a number of videodisc projects within Atari, within divisions and across divisions. The theory being that we plant a number of seeds to see which ones grow: better a lot of smaller projects than one or two BIG projects.

There shouldn't be any one person empowered to put thumbs up or down on every project because there isn't one person today who could hope to recognize all the valid applications people will come up with. Expert is a relative term and while there are people a little further along the learning curve (and thus are 'experts') we wouldn't want to invest them with the power of a czar.

On the other hand, we definitely want to take advantage of Atari's size and diversity. A videodisc ombudsman should be appointed to make sure the lessons learned on one project are transferred to others and to have an overall sense of all videodisc resources - machines and people - inside and outside the company.

On the business side, we suggest that all videodisc 'deals' - hardware and software - be funnelled through one person. This is the only way to maximize Atari's clout effectively.

4. The FIRST most important hardware issue for Atari to address IS NOT player modification, but the design and development of an INTERFACE between the videodisc and Atari computers that would allow program designers to fully utilize the technology that is already here (and that will be in the marketplace over the next couple of years).
First efforts should be:
   a) A cartridge (and connecting wire) that would turn the VCS and/or 5200 into a low-level videodisc controller.
   b) An interface for the 800 (1200, etc.) which can at least transfer feedback from player to computer about what track is being read and at best one that permits you to overlay computer graphics on the videodisc signal.

c) Modify Atari Antic chip to ensure compatability OF Atari computer graphics with NTSC video. Work in this area has already been done for the ERIC system and could easily be expanded. ERIC constitutes a headstart. Let's not squander it!

5. Publishing Model

If a careful strategy is worked out, there is no reason why Atari shouldn't become the Atari of the Videodisc industry or the Warner Records of the record industry. Key to this is the adoption of a publishing model, where Atari functions in part like a record or book company which publishes the work of independent artists. This is not to say that each of the divisions shouldn't produce some Videodisc programs in house, but that in the long run, Atari needs to call on the talents of a much larger group of people than it can hope to employ. This has as much to do with the sensibilities of artists and the geographical location of Atari (Sunnyvale is not NY, LA, SF, or Boston) as anything else.

Presumably, Atari should solicit ideas and proposals for projects from a broad cross-section of independent artists and producers. Atari would then choose a number of projects for development with Atari functioning as an executive producer/editor - working with outside production companies, etc., to refine concepts and monitor the production itself. Who manufactures the discs is a subject for discussion (although in the short run obviously Atari is not going to press discs). Atari perhaps with Warner entities would control distribution.

6. Range of publishable disc types

An advantage to the complexity of the evolving videodisc technology is the range of program levels on which discs can be published.

At one end of the spectrum are programs for standalone players. Atari should definitely do game discs on the order, but better than, the Kidisc.

Another level can be developed with standalone programs upgraded by adding computer control by a floppy disc and a suitable interface. Control of the material on disc from the Atari computer can allow simple sequencing, browsing or games programs with good quality images. Popular movies in standard disc format (CAV) may be transformed into a home computer game with overlayed graphics.

Development of material for 1985/86 machines (videodisc players, computers and game machines) can include more complex interaction, branching structures and descriptive programs stored on videodisc. As the disc player becomes more accepted as a true peripheral for the computer, more complex programming efforts can be published.

Spinoffs: We need to be constantly aware of major possibilities which arise in the course of videodisc work. For example, the possibility of using Coin-op's manufacturing capablities to support the initiation of a business which offers point of purchase video display units ala ERIC should certainly be considered.

7. Videodisc Facility

We distinguish between a production facility capable of producing the 1" tape required by the disc manufacturers for mastering and a development facility capable of testing out ideas to be used in actual productions. We recommend against setting up a production facility at this time for two reasons:

a) It's extremely expensive if done right, probably between four and eight million dollars. Given that we probably couldn't use the full capacity of such a facility ourselves this is probably an unnecessary expense. Also, there are many established production houses, some right in our Sunnyvale backyard which would supply this capability for us now at expensive but reasonable costs.

b) It's too early to know exactly what configuration we might want in a production facility; we probably need to be involved in actual videodisc production for a few years before we would be confident in spending that amount of money and be sure that we are building a facility that would serve our needs.

On the other hand, we definitely recommend setting up a development facility to serve the work in the divisions (including outside artists, etc.) who would be working on programs to be published/distributed by Atari. The cost of such a facility should be on the order of one-half to one million dollars.

8. Hardware Wars

We have been visited by RCA and Pioneer, the major players representing the two videodisc formats - capacitance and laser respectively. VHD, the third

format, seems to be indefinitely on hold. Each technology has its advantages and disadvantages depending on the application. For now, given technical and market realities, we will have to work with both formats. Both companies expressed an interest in working with (companies like) Atari to develop custom hardware. For discplayer features requiring major Research & Development efforts, both companies raised the possibility of Atari co-funding such work (which says something about how enthusiastic they are about sinking a lot more money into the technology on their own).

We should speak to the other manufacturers - Sony, Philips, and Matsushita - so that once we have established our hardware and software requirements and priorities we are in a position to strike the best deal/deals possible.

Immediate Steps

1. Hold a major brainstorming meeting, the central purpose of which is to begin to define the range of applications that Atari may address. We want to come out of the meeting with a much clearer idea of the sorts of videodisc programming appropriate to Atari - the Atari look, style, niche, etc. Clearly this will be an evolutionary process, but we need to start the ascent from a higher plateau.

   a. The nature of interactivity and how it relates to the potential uses of the videodisc.

   b. How to use the combined features of the videodisc and computer.

   c. Potential of standalone player for products with the Atari name on them.

   From this meeting we should come away with enough of a sense of the range of applications we are interested in such that we would be able to set hardware priorities - both what is needed in an interface and what sorts of features we need built into future machines.

   We may want to invite a few key people from outside Atari, including other WCI people actively considering videodiscs, and some independent producers we may want to work with who have demonstrated some imagination with regard to videodiscs.

2. Act on appointing an ombudsman to facilitate projects throughout the company.

3. In order to make sure that Atari is in a strong position vis a vis the video/computer marriage, a company-wide group should be created to consider a number of hardware-related issues and help define longer term research directions for both hardware and software.

   Some of the issues that the group should explore are:

   a. Specs of an interface between Atari hardware and various videodisc players.

   b. The potential of OEMing an Atari videodisc peripheral.

   c. Mass storage of digital data along with images on videodisc.

   d. Erasable, writable, optical disc players.

   e. Sound over still image.

   f. Multiple-head players and/or frame buffers.

4. The Warner Connection

   Videodisc design, production, and manufacturing is very, very expensive, especially for a consumer media product. All possible leverage must be brought to bear if innovative programming is to be produced and marketed successfully. For this reason, we suggest that Atari take the lead in considering and urging WCI to consider ways in which WCI's varied entities might contribute to a major effort. Some questions which might be considered are:

   a. The use of Warner production facilities.

   b. Distribution through existing WB and Warner Records channels.

   c. Tie-ins with Warner Publishing entities, e.g. - DC Comics.

   d. Mastering and replication deals with disc manufacturers which would include Warner Records, Atari, and WB.

   e. Should WCI go into the mastering and replication business?

f. The use of existing (and future) Warner TV and movie footage in Atari videodisc products.

5. Marketing and Testing

We suggest that Conrad Jutson's group begin a significant marketing study of videodiscs, both in terms of the key markets for Atari to address and the likely channels of distribution (e.g. - will Atari videodiscs be sold in record stores, video stores, computer, or toy stores?). There is no reason to do general market testing, i.e. - asking the public at large what sorts of videodisc programs they want. People who have not been exposed to the technology do not have the imagination necessary to make this sort of market research useful. On the other hand, users of the technology, particularly where there are children in the household, may be a rich source of information as to the market that Atari should attack.

6. Securing Rights

In anticipation of videodisc games developments, it would make sense to secure rights and/or arrange for joint ventures with DC Comics, Disney, Sesame Street, Henson's Muppets, etc.