SPECIAL REPORT
WUI: THE WAR OVER USER INTERFACE

THIS WAR PROMISES TO BE JUST AS CONTENTIOUS AS THE ONE OVER OPERATING SYSTEMS, WORD PROCESSORS, OR SPREADSHEETS.

There is a war brewing in the computing world over user interface, a war that promises to be every bit as contentious, vituperative, confusing, etc. as the ones that have been fought over operating systems, hardware architectures, programming languages, word processors, and spreadsheets. It also promises to be as significant as the war that is simultaneously proceeding over the design of database and communications management extensions to PC system software. Microsoft people run around talking about GUI (graphical user interface) and calling it "gooey". So my contribution to the subject area is WUI, pronounced "wooey", which stands for the War over User Interface.

A lot of people thought this war was fought between Microsoft and Digital Research back in 1985 after they released competing user interfaces (Windows and Gem). In fact, the real war is just getting started and it is going to be fought by hardware manufacturers trying to position their product lines and general approach to personal computing as the right and proper way to use such computers. Several WUI players have already been knocked out, even if they don't know it (including Digital Research, Atari, and Commodore). Some players are in weaker positions than they would like to admit (including Xerox, Hewlett Packard, and Tandy). Some players haven't even fielded their armies yet (including Sun, AT&T, and Next). But the players are well known, and they are easy to identify: Apple (Finder); IBM (Presentation Manager); HP (New Wave); Xerox (Viewpoint); Tandy (Professional Deskmate); Sun/AT&T (Not announced); and Next (Not announced).

There are also going to be multiple winners and multiple losers. Apple and IBM are certain winners: Apple has already invested more than four years of both development and marketing in establishing user interface as a competitive factor; IBM is powerful and smart enough to backfill with a user interface of its own, one that happens to have been designed and developed primarily by Microsoft. So the real question is whether there will be additional systems and, if so, who will define and supply those systems? The currently anticipated alternatives include the following:

1) Sun/AT&T: Some people have referred to X-Windows or News as user interfaces. They are not. Both are somewhat different approaches to the basic technique of managing the process of putting windows on the screen of a workstation. A user interface, on the other hand, is a complete specification for how a user deals with the computer, the software, networks and other connections, and data, a specification that really gives visual meaning to the inherent value in a computer's architecture. Sun has merged the two windowing systems into one for its existing workstations, but it as yet does not have a user interface. As I've written before, Sun has been busily putting together strategic development, marketing, and ownership relationships to allow it to set a new, open standard that includes the Sparc chip, the Unix operating system, the Ethernet network, and a variety of other bits and pieces. The one missing element in Sun's strategy to date is its user interface. How it will get one (and it does want one) is still unrevealed.

2) Xerox: One of the companies that Sun has been busily relating to is, of

course, the grandfather of most user interface techniques: Xerox. Xerox has a fully developed user interface called Viewpoint, which currently resides in the Xerox 6085 workstation with the Mesa processor and a proprietary operating system. No one (except perhaps Xerox) considers the 6085 a serious contender in the personal computer arena (or even really the workstation arena), but I evaluate Viewpoint below, just in case Sun's relationship with Xerox happens to end up being related to a Sun version of Viewpoint (which I personally consider a 50-50 proposition).

3) Next: Steve Jobs is the guy who is widely viewed as ripping off Xerox's user-interface development work when he managed the design of the Macintosh. For all that, the guy has shown a certain ability in designing and implementing new computer systems. So I would venture to say that the most interesting and significant advances in user interface design will be contained in the Next machine when it is announced. We already know that one component of the interface will be a single imaging model using Display Postscript, which will allow users to treat the screen and the printer as equal output devices. But it is not an announced product and can't be included here.

4) HP New Wave: Hewlett Packard has stuck its oar into the WUI debate with an extension to Microsoft Windows called New Wave, which interestingly incorporates more directly the basic concepts behind Sun's Viewpoint than even the Macintosh or Windows itself. In so doing, HP has fixed the primary and most glaring flaw in the the Windows/Presentation Manager system, which is that there is no integrated file-system and desktop metaphor. (DOS Executive is really just a window into the existing DOS file system.) But HP is faced with trying to get Microsoft and IBM to adopt its extensions as standard, not an easy task.

5) Tandy Deskmate: Tandy Corporation, probably the ultimate pragmatist amongst all these idealistic competitors, is trying to set a standard user interface for

THE OFFICIAL P.C. LETTER VAPORLIST

WORDPERFECT MAC: I have a feeling that Pete Peterson is now wishing he'd never told me that this product was late. Wordperfect Mac has been delayed by another four months, until March. Peterson says his company underestimated the work necessary to rewrite the Wordperfect code relating to on-screen justification.

IZE: Persoft thinks it will be a month late with Ize. The program's code is pretty much finished, beta tests are well along, and the documentation and packaging are due from the printers in late February.

Product	Company	Announced	Original date	Revised date	Months in vapor
Optical drive	Verbatim	07-85	12-87	04-88	30
Pageperfect	IMSI	09-86	12-86	????	16
Atari PC	Atari	01-87	04-87	????	12
Fullwrite	Ann Arbor	01-87	04-87	????	12
Wordperfect Mac	Wordperfect Corp.	01-87	10-87	03-88	12
Sprint	Borland	02-87	12-87	02-88	11
OS2 Standard 1.1	IBM	04-87	10-88	NA	9
OS2 Extended 1.1	IBM	04-87	11-88	NA	9
1-2-3 G	Lotus	04-87	????	NA	9
Publisher	Springboard	06-87	09-87	03-88	7
Ize	Persoft	06-87	01-88	02-88	7
3+ Open	3Com	07-87	06-88	NA	6
1-2-3 Mac	Lotus	10-87	????	NA	3
Freehand	Aldus Corp.	11-87	03-88	NA	1
Agenda	Lotus	11-87	04-88	NA	1

DOS that allows DOS users to get many of the same facilities that Microsoft and IBM are trying to restrict to OS/2 Presentation Manager: network services, built-in electronic mail, etc. Because Tandy seems to understand the needs of small business and professional users, where mainframe connectivity and system administration just don't matter as much, and because Tandy has been in the business long enough to know how to avoid at least the basic mistakes, I'm including Deskmate in this evaluation.

There are other systems that some people — primarily the designers — would like to include as contenders. These include Digital Research's Gem, which started out fairly strong but appears to have suffered from a lack of leadership. The interface is the closest to the Macintosh in structure and approach, but Digital Research has never been able to provide it with a complete or workable keyboard interface (using the home key to select an object just doesn't make sense) nor to present enough of a marketing strategy to win over any major OEMS. Digital Research has succeeded in selling Gem to the world's two leading business-is-war entrepreneurs — namely Jack Tramiel at Atari and Alan Sugar at Amstrad — but both of those entrepreneurs seem fated for niche positions in the world of mainstream personal computing. And, since
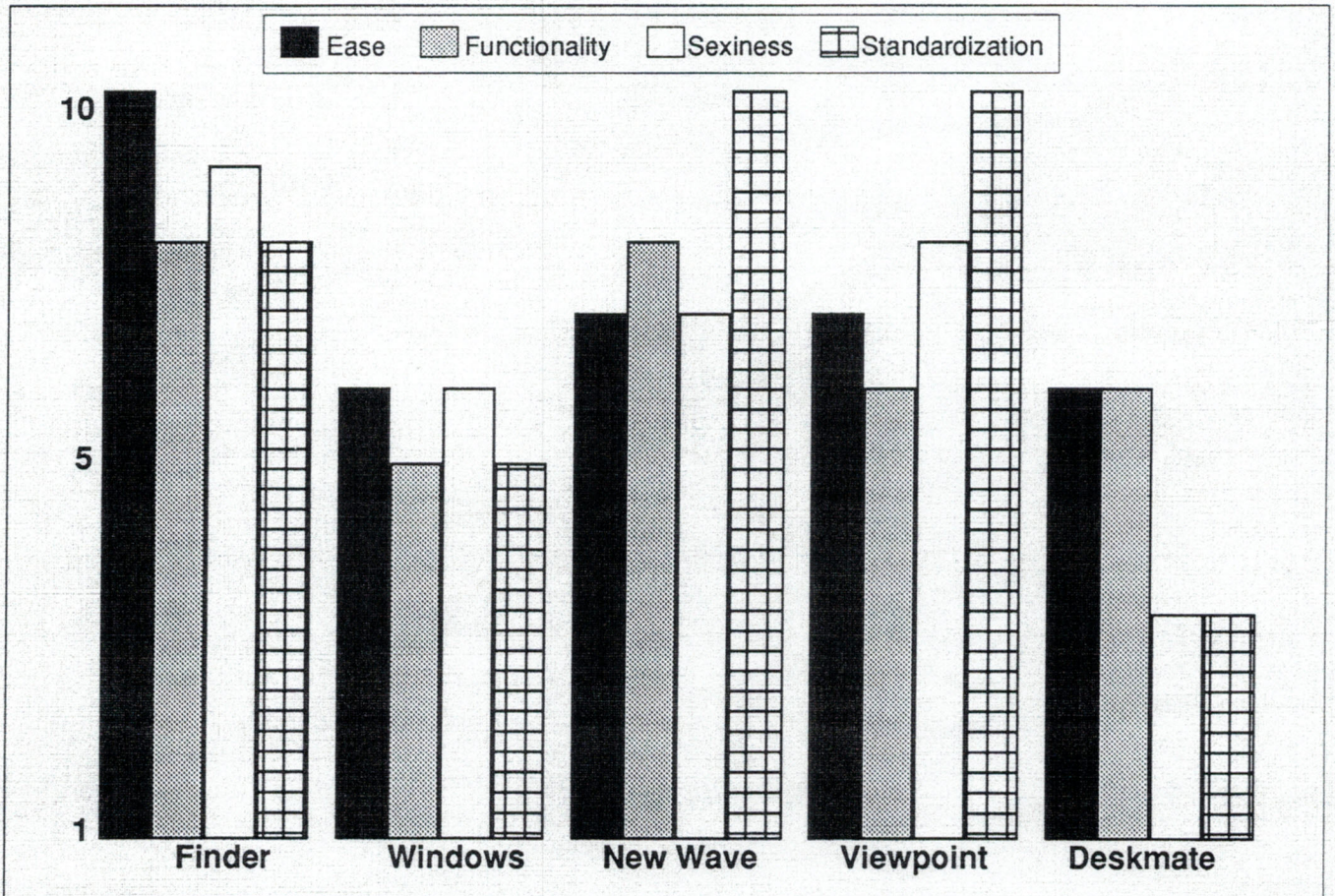
On a scale of 10, here's how I think each of the competitive user interfaces rank. There's a lot of subjective judgement in this chart, but the idea is to reflect both the objectives and the implementation behind each approach. Apple's Finder, for instance, has been on the market and actively revised for more than three years, so it tends to rate higher in all categories. Xerox's Viewpoint has been on the market longer, but hasn't been subjected to as much field experience. It is stronger in standardization, an aspect that is hard to maintain when an environment becomes widely adopted. And both Windows and Deskmate, to different degrees, try to accomodate the existing MS-DOS world, which restricts their ability to score high in either sexiness or standardization. New Wave is conceptually similar to Viewpoint, but is still in development.

IBM announced that it was licensing parts of Windows as its standard interface, people just don't talk much about Gem anymore as a mainstream user interface. Also included in the other-systems category is Commodore's Intuition (on the Amiga). The standard interface for the Commodore Amiga was slapped together in about six months by the Amiga development team and that lack of forethought or vision shows. Intuition refers to hard disks as DH0: and DH1: and to floppies as DF0: and DF1:. It seems to have no facilities for dealing with multiple disks, doesn't recognize the possibility of a network, and is deficient in hundreds of other small features. (A menu command called Snapshot, for instance, is the only way to permanently move an icon on the desktop.) Perhaps if Commodore had been able to build more momentum for the Amiga, Intuition would be better developed and a WUI contender. But it didn't.

The hardest part of looking at user-interface designs and trying to evaluate them for competitiveness and relative value is that user-interface design is by nature very personality oriented. In reading the following, be aware that I'm probably susceptible to bias since I've been using a Macintosh on a daily basis for three years. So I know the strengths and weaknesses of the Macintosh system in detail. I know Windows pretty well also, because I spend a lot of time on PCs checking out software and doing some work. But I am going strictly on demonstrations for my evaluation of New Wave, Viewpoint, and Deskmate, which means that I could be wrong.

In any case, I've tried to focus on four basic areas for my analysis of the interfaces. Ease is a measure of how easy it is for the user to get things done in the system without referring to a manual or having to be trained. Functionality is a reflection of how much the system lets you do in configuring it, managing your files, and keeping yourself organized. Sexiness is a measure of how much the system lets you use graphics, sound, and other techniques to dress up the system and give it personality. And standardization is an attempt to place a value on the system's ability to naturally enforce a high level of consistency and standardization on applications. The chart on page 3 is my basic evaluation of where each system stands on a scale of 1 to 10.

SPECIAL REPORT
APPLE'S FINDER: MATURITY IN UI

Apple's Finder was originally conceived as an interface for a single floppy, single application appliance computer. It is testimony to either the luck or vision of the original designers that the interface has been able to survive tremendous evolution without much essential damage. Indeed, a 128K Macintosh user that went to sleep in mid-1984 would still be able to use Finder for basic tasks and would eventually discover its new features pretty easily.

The Finder is now probably a more complete definition of a PC-based universe than any other competitive user interface. It defines the user as the center of a very large universe that can include anything from an 800K floppy to local and remote hard disks, distributed and dedicated file servers and peripherals in a local network, and massive remote mainframe computers. What's most unique about Finder, particularly from the point of view of an information manager in a large company, is that it defines even a $10 million mainframe as a file server, ready and waiting to serve the needs of a Macintosh user.

Since the Finder is the user interface used by more people for longer than any other, it is probably the one most grounded in the real world. Critics frequently accuse Apple of stealing Xerox's basic research in order to develop the Finder. If that was true three years ago, it is no longer. The Finder has evolved into a system considerably different than what Xerox itself has developed, a system that incorporates the realities of maintaining relationships with third-party software companies, and a system that gets at the heart of the independence and essential personality of the personal computer.

A single big difference between the Finder and Xerox's basic approach (detailed below) is that Apple defines applications programs as independent objects in the desktop metaphor, whereas Xerox recognizes no boundary between system software and applications programs. In Xerox terms, that makes the Macintosh a loosely integrated system, something that most PC users would be surprised to hear). For the world of personal computers, where success is defined by how many mainstream applications a particular system attracts and not by basic computing performance, this "bastardization" of the Xerox model is absolutely necessary.

Additionally, Apple defines everything in the computer world as an extension to the user's desktop. The desk accessory called the Chooser allows the user to choose what peripherals and servers he would like to be connected to. And the basic model allows the user to "mount" other desktops, whether they are shared or not. In more theoretically pure models, the desktop is a closed world where new applications have to be installed, data has be delivered (by electronic mail) from other desktops, and storage is completely virtual (which means the user doesn't necessarily know where the data actually resides). Apple's approach fits better into the chaotic, personalized, independent world of personal computers, where each user is allowed to choose his own applications, define control over his data, and pass both back and forth with other users.

However, the Finder is suffering from several basic problems. First, multitasking (or even the current context-switching of Multifinder) doesn't work very well in the metaphor. The single, fixed menu bar at the top of the screen is inflexible. The reason for having separate, specially treated desk accessories is removed, making the Apple menu redundant. Second, the introduction of bigger screens is putting pressure on Apple to introduce elements into Finder which would make Steve Jobs stomach turn. With a 19-inch screen, for instance, most users don't want to have to move the mouse enough to pull down a menu when Apple could introduce a second button on the mouse to allow for pop-up menus. Third, Finder has never had and doesn't seem to be acquiring a standardized keyboard interface. While Microsoft has implemented a keyboard interface in its products (including control of Apple's standard filing and editing commands), Apple hasn't blessed that or introduced an alternative, and other developers seem unwilling to give Microsoft any credence in Apple system software, given that company's relationship with IBM. Fourth, the basic idea of co-operative processing, where either multiple applications share the processing of single task or one application executes different processes on different, connected computers, doesn't work as well when the individual user has as much control over his domain as the Macintosh user does. Co-operative processing absolutely requires some centralized coordination.

In addition, there is some question about whether Finder will (or should) ultimately remain the primary interface for Macintosh computers. Interleaf is trying to introduce Macintosh users to a new, more Xerox like interface with its new Publisher product (now shipping, by the way). Desktop Express, the result of Apple's joint venture with Dow Jones and MCI Communications, actually violates more user interface rules than any other Macintosh product I'm familiar with. And Hypercard, now defined as part of the system software, can actually be used as a replacement for the Finder (as long as you use something like CE Software's Disktop desk accessory to replace the Finder's file management features).

Even with new pressures on the design of Finder and the idea of throwing it out completely, Apple remains the king of user interfaces. Finder is the only interface with 1.5 million people sitting in front of it daily. Apple is spending tremendous amounts of money on both development and basic research to remain the leader. And it seems willing to experiment with alternatives and to extend the existing Finder. (Witness the recent introduction of hierarchical menus in the most recent version of the Finder.)

MICROSOFT WINDOWS: ECLECTICISM IN UI

ONE BIG PROBLEM FOR MICROSOFT IS THAT IBM STILL CONSIDERS SYSTEM SOFTWARE AN OPTION.

In trying to design a user interface for IBM-style machines, Microsoft's two biggest problems were that IBM considers system software (of all kinds) optional and that IBM managed to sell more than 5 million computers before it even knew there was such a thing as user interface. Apple had a much easier time (in terms of design) with the Macintosh because it was a brand-new system and because Apple treats system software as part of the computer to the degree that about 25% of the code involved is burned into read-only memory. Since IBM considers system software optional, software developers can't count on every user having the appropriate resources to take advantage of the graphical interface. And, since there is such a tremendous installed base of 8088-based DOS machines, developers are reluctant to pioneer with programs that may overburden the majority of the installed base.

As a result, the basic user interface for the IBM world has been developed in a hodge-podge, reactive fashion. (I'm evaluating Windows 2.0 here, since Presentation Manager is only in its early prototypes. But both IBM and Microsoft insist that the two will remain nearly identical.) Windows started with Microsoft's desire to develop a bit-mapped software interface in 1981. It developed further in 1983 with Microsoft's desire to have a differentiated interface when the company learned that Apple was far along with its own bit-mapped user interface, based partially on research done at Xerox PARC. It developed even further in 1985 with Microsoft's willingness to acquiesce to IBM's conservatism, when the company finally focused specifically on persuading IBM that it too needed a graphical user interface.

IBM's adoption of a version of Windows for the next release of its OS/2 certainly will help make a graphical interface more universal in the IBM world. Every serious software developer I know is now doing all of their new-software design (as opposed to revision of existing software) assuming a graphical interface. Even so, there are still at least 8 million 8088/8086 machines in the world with another 3-4 million being sold every year. IBM and its competitors are still selling plain-vanilla DOS without a graphical interface with those machines. And OS/2 1.1 will be priced at $325, nearly $250 more than DOS (a price differential that effectively killed CP/M as an alternative in 1982). And IBM, as far as I know is neither planning to burn part of Presentation Manager into ROM nor to aggressively evangelize the use of graphical interface to software developers in general.

Any transition to a graphical environment on IBM-style machines is bound to be maddeningly slow and driven strictly by market forces. And the level of standardization is equally likely to be fairly low, at least as long as users are forced to switch in and out of Windows/Presentation Manager in order to get their jobs done.

The result of this folderol is a system that doesn't really owe its allegiance to any particular research heritage and that most user-interface researchers would argue has some serious deficiencies. While Windows does use parts of the desktop metaphor, it does not implement a complete metaphor. Indeed, all implementations of Windows to date continue to use the DOS filing system, which imposes some incredibly primitive restrictions on file naming, directory structures, and network connections. Users must still name files for DOS; they must still understand drives as letters followed by a colon; they must still see remote servers as drives with letters greater than D:. In addition, Windows own file management features are not as good as DOS's, so that experienced DOS users frequently leave Windows in order to do basic copying and deleting tasks. (In fairness, I should also observe that Finder's file management capabilities are also primitive: Apple needs to improve the Finder so that experienced users with hundreds of files can also use the system efficiently.)

To a certain degree, the problems that Microsoft ended up solving in Windows were not so much interface problems as problems with the underlying operating

system. The addition of multitasking and virtual memory were really fixes for the system software and not part of the user interface. With OS/2, Microsoft got a chance to permanently fix those features in the system itself and to give the operating system access to the protected modes of the newer Intel chips and to much greater memory. Now Microsoft promises that the Windows filing system will be vastly improved with the first Presentation Manager version of OS/2.

Once we get to that point — a fully developed graphical interface on top of a truly robust operating system — the question is: "What will we have and how competitive will that be with other systems?" That's nearly an impossible question to ask right now because Microsoft is working on so many areas of the interface and underlying system at the same time that it's nearly impossible to tell how the pieces will end up working together or what role IBM might have in modifying Microsoft's work. How will Microsoft's recently announced SQL Server appear to the user on a PC? How will LAN Manager represent remote services or peripherals? Will Microsoft implement a graphical representation of files other than Windows applications (namely data files and utilities)? Will Microsoft offer an alternative to the autoexec.bat and config.sys files for customizing the details of the computer?

(An aside: For a while, people at Microsoft were actually referring to Windows and Presentation Manager as "SAA." As most people know, SAA stands for Systems Application Architecture, IBM's name for its general specification of development and interface environments for all its computers. But SAA and Windows are not interchangeable. Indeed, as far as IBM is concerned, a standardized, universal graphical interface is an objective only for the personal-computer portion of its computer line, which may end up replacing terminals by the year 2010 or so. Instead, what IBM intends to promote as the universal standard is what it calls "Common User Access," which is specification for standard ways to interact with a character-based screen whether that screen is a dumb terminal hooked to a mainframe or a $10,000, VGA-based PS/2 model. CUA is embodied in a 328-page document subtitled "Panel Design and User Interaction," which was published by IBM in December. I can't resist observing that Apple's "Human Interface Guidelines," which sets the standards for Finder development, is only 139 pages long.)

SPECIAL REPORT
HEWLETT-PACKARD'S NEW WAVE: TILTING AT WINDMILLS

Hewlett Packard has been making a serious, sincere effort to contribute to the personal computer industry for years, without much success except in the area of printing and plotting. Now the company is back with another contribution. This time Hewlett Packard would like to finish what Microsoft started by turning Windows into a complete, object-oriented graphical user interface. HP wants to do that with an extension to Windows called New Wave. (What a hokey name for Hewlett Packard to have chosen; it sounds like a punk game for teenagers.)

HP's newly announced user interface actually solves a problem with Windows that hasn't yet been solved by either Microsoft or IBM: it both replaces the DOS file system and incorporates a full desktop metaphor into Windows using a Xerox PARC-style approach along with some new artificially intelligent concepts of teaching the system to remember what the user does. New Wave treats applications as part of the system so that the user doesn't have to remember which data files work with which applications. Additionally, it treats pieces of information as independent objects that can be viewed from within any document: that means that if you update a spreadsheet in one document, it is also automatically updated in any other document where the same piece of the spreadsheet is included.

New Wave also builds into the metaphor the concept of connected computers by using electronic mail as the way to transfer and store documents remotely. Once the user builds a document out of different files, he can mail it to another user or list

of users or to a storage area (on a server or mainframe). Additionally, New Wave includes what amounts to an intelligent macro facility for automating processes or tasks that the user tends to repeat regularly. Macros, or agents as HP likes to call them, can be recorded and edited, and the underlying language allows for conditional branching and other programming concepts.

New Wave is a big system, requiring two megabytes of memory all by itself (without OS/2 or any of IBM's or Microsoft's database or communications extensions). It's a big system because it tries to do a lot for the user. From my brief demonstration, it looks as though New Wave really does advance the state of the user-interface art. But (and you know that was coming) New Wave doesn't inherently recognize the politics and realities of the personal computer business. First of all, Hewlett Packard is not considered a standard setter in the world of PC system software: that makes New Wave nice but not a serious consideration for any PC software developer trying to work their way through all of the design and marketing decisions presented by all the alternative interfaces available. Second, while Bill Gates attended HP's introduction of New Wave, IBM and Microsoft seem bound to go their own way when it comes to replacing the DOS filing system and extending Windows to a complete metaphor (since no one could really conceive of IBM independently deciding to adopt the result of HP's work on user interface, even if HP has had New Wave in development for three years and currently has more than 100 people working on it). Third, New Wave is technically an aggressive system, requiring a substantial redesign and rewrite of existing applications in order to be effective: that makes it even harder for HP to evangelize development of New Wave applications software.

SPECIAL REPORT

XEROX VIEWPOINT: STUCK IN HISTORY

MAYBE VIEW-
POINT WILL END
UP AS THE SUN
INTERFACE?

Now we get to the grandaddy of user interfaces: Viewpoint, which is the derivation from the user interface used on the original Alto computer and the subsequent Star and is the interface that everybody accuses Apple of stealing for the Macintosh. Viewpoint 1.1.2 is currently the standard user interface for the Xerox 6085, the workstation that is at the core of the Xerox Documentor electronic publishing and production system. Xerox is about to announce version 2.0 of Viewpoint, which is the first major revision since the interface was named Viewpoint and introduced with the 6085 in 1985.

One might wonder why I even include Xerox's user interface as a WUI contender, since it is only implemented on what most people consider a special purpose publishing system. I think it's important for two reasons: 1) Most of the concepts related to user interface design were either discovered or developed at Xerox's basic research facility in the late 60's and early 70's and are represented in the Viewpoint interface. 2) Given Sun's aggressive joint venturing and deal making and given the specific relationship between Sun and Xerox (for development of a Sparc-based computer), I think there's some unmeasurable likelihood that Sun might license its user interface from Xerox. If so, Viewpoint would instantly become a much more serious contender.

Unlike Apple's Finder, the center of Viewpoint's metaphor is actually a document, which can include a variety of kinds of data. In Viewpoint, everything is an object — paragraphs, icons, pictures, printers, etc. — and the system has a basic set of commands that are the same for all objects. There are no applications per se, since all of the actions that you might want to take with the document (in Xerox's eyes) are built into the system. Indeed, it will only be in version 2.0 of Viewpoint that the user will be able to load a new piece of applications software into the system. Documents are then placed on the desktop or in folders on the desktop. The user communicates with devices and people on XNS (Xerox Network Services) through special icons. You print a document by placing it on top of the printer icon; you send it to someone else

by putting it on top of either a shared-space icon or on top of the other user's icon; you store it by putting on top of a storage icon.

While Xerox's research has clearly been instrumental in the development of user interfaces in general, I have two significant problems with Viewpoint. The first problem is that it doesn't incorporate in its metaphor the necessity for independent software developers to be able to develop a separate identity. It puts software developers in the same position that internal slots put add-in board makers: invisible. From a theoretical point of view, Viewpoint's total integration is wonderful. But the reality is that PC users like and want the diversity of choosing their own applications, even if those applications might work wrong according to Xerox's view of the world. Without that diversity, Viewpoint can never really be a serious contender in the hurly-burly world of PC software.

The second and less serious problem is that Viewpoint doesn't represent much of an advance over what was developed at PARC more than ten years ago. Indeed, if you go back and read what the PARC researchers described as the ideal interface, you get a pretty close description of Viewpoint. What this means to me is that Xerox hasn't had enough exposure to end users banging away at their interface and that the decision makers inside Xerox are really committed to the theory of the interface much more than the real world of getting users in front of machines and working. The interface gurus at Apple and Microsoft, on the other hand, are both dealing with hundreds of thousands of users and willing to consider new ideas as they come along. Xerox needs to be much less defensive and much more open minded; it needs to stop resting on its laurels as originator of the idea of user interface and get back in front of the pack.

SPECIAL REPORT
TANDY DESKMATE: VIVA LA SMALL BUSINESS

Meanwhile, down in Forth Worth, Texas, mostly unnoticed by the rest of the PC industry, Tandy Corp. has been more involved in developments in user interface than any other hardware company except Apple, Xerox, and Hewlett Packard. Tandy was an early supporter of Windows. It made a serious investment in Ovation, and it is one of the few PC-compatible makers to bundle a user-interface shell with DOS and its computers.

So far, all but one of Tandy's experiments with user interface have been unrewarding. The one exception is its relatively simple Personal Deskmate shell for its Model 1000 computers. Tandy seems to have discovered that Deskmate turned into a competitive advantage in selling computers to home and school users. In hindsight, that's not very surprising since those users are the least likely, logically speaking, to want to have to learn how to use DOS. From its discovery, Tandy has developed a strategy of using Deskmate and DOS extensions (16-color CGA, DOS in ROM, and so forth) to differentiate itself in the home and school markets.

Even more interesting is that Tandy seems to have figured out how to extend that differentiation to business markets. Tandy is smart enough to know that it can't apply the same strategy to both home and business markets. So it is trying to develop a separate product strategy for business markets, only part of which is clear so far. That separate strategy is based to a large degree on two things: 1) Tandy doesn't think that its loyal markets of small businesses and professionals will abandon DOS in favor of OS/2 anytime in the near future. 2) Local networking and ease-of-use are just as, if not more, important to small business and professional users as they are to corporate customers. (Leave it to Tandy to remember that more of the world's business is conducted by small companies than by the Fortune 1000.)

So Tandy is developing what it calls Professional Deskmate as an alternative to the OS/2 Presentation Manager plus Extended Edition package being offered by IBM and the OS/2 Windows with LAN Manager and SQL Server package being

WHILE EVERY-
BODY ELSE
WORRIES ABOUT
CORPORATIONS,
TANDY IS FOCUS-
ING ON SMALL
BUSINESSES.

offered by Microsoft to its OEMs. The elements include a fairly simple, graphical shell for DOS with file service and electronic mail extensions based on the Appletalk (now called Localtalk) cabling system with Tops distributed networking software. The system eschews any particular religion about user interface, since it doesn't require iconic representations of either data or programs and is based primarily on a text-oriented implementation of user interface (so that the relatively low-power machines aren't excluded). But it still includes basic clipboard integration, support for graphics and other data types, and a model for networking applications.

Quite frankly, I think the strategy is brilliant: while IBM, Apple, and virtually the rest of the computing world focus almost exclusively on corporate and government business, Tandy is developing a differentiated, useful product strategy that responds to the basic needs of small businesses and professional offices. Those two markets, in sum, are bigger than the sum of all large-organization markets, giving Tandy a unique opportunity to establish a strong market position while everybody is looking the other way.

OPEN LETTER

DEAR IBM: YOUR DEVELOPERS SEEM TO LIKE MACINTOSH A LOT

WHY IS IT THAT
THE LEADING PC
NERDS ARE ALL
USING MACIN-
TOSH IIs?

TO: Bill Lowe
FROM: Stewart Alsop
RE: Macintosh II

Dear Bill:

You've got a problem. So does Compaq's Rod Canion, AST Research's Safi Qureshey, PCs Limited's Michael Dell, and anybody else that builds a high-perform-ance, high-end computer like the PS/2 Model 80 or the Compaq Deskpro 386/20. The problem is that, as far as I can determine, most of the leading software personalities have abandoned IBM-style machines for their personal use. I know that Mitch Kapor, Ed Esber, Philippe Kahn, Gordon Eubanks, and Dave Winer are all personally using Macintosh II computers. Others are using the Macintosh alongside either your ma-chines or Compaq's.

What does this say about your machines? The point is that these aren't the Mac hackers of old. These people run the companies that sell the leading programs for your machines and that set the technical tone in the computer industry more than any other group. As you know, most sales in the PC business are generated by some sort of recommendation, usually a passive one. Even sophisticated buyers look for role models, by which to measure their own preferences and decisions about purchasing decisions. Right now, the leading role models seem to prefer Macintoshes. And this creates a big problem for you, because it gives Apple a window of opportunity for locking itself long term into a very big and very lucrative marketplace, one that has traditionally been your bailiwick.

The solution to the problem, of course, is to give the very same people the incentive to switch back to using their PCs (or PS/2s, as the case may be). But, by definition, you can't force this group to switch (given their inherently independent nature), so instead you have to provide sufficient motivation. In order to understand how to do that, you need to understand why these people have decided to adopt the Macintosh. Why are these people that have gotten rich off of your product line turning to the Macintosh for their personal needs?

At first, you might think that they perceive the Macintosh II as a superior piece of hardware, a fast, state-of-the-art machine with a complete 32-bit data path from the processor through memory into the I/O system. But your PS/2 Model 80 can clearly match the basic hardware performance of the Macintosh II in speed, memory, throughput, and so forth (even if it is somewhat more pricey, but we're talking about people that can afford just about whatever they darn well please). And your introduc-tion of the PS/2 line in general has upgraded customers' perceptions of the IBM PC

product line. The PS/2s are very high-touch machines: classy industrial styling, great fit-and-finish, good basic performance, high integration, decent color graphics, 3.5-inch disks.

No, the reason real nerds prefer the Macintosh is the software. These people are using Macintosh IIs because the best new applications software is showing up first on the Macintosh in general and sometimes even only on the Macintosh II. I'm certain that they personally like using the software, because some of this stuff allows you to do things that you just can't do on a PC, because it all works together more productively than PC software, and because the new Multifinder and Hypercard software actually does let you become more productive as a human being than any existing solution on the PC, particularly if you are an executive manager. But the real, underneath, shouldn't-talk-about-it-reason is that these people make their living from developing hot, new software, and it would be fiscally irresponsible for them not to be personally aware of the software arriving on the Macintosh.

Obviously, the way to solve your problem is to somehow have software developers bring their stuff out on the PC first, i.e to make the PC a better opportunity for technical innovation and commercial success. That's easier said than done, but it is possible to do. Indeed, it's the same basic problem that Apple faced three years ago and that Apple managed to solve, primarily through perseverance and listening to their software developers. Part of the solution to your problem is already in progress. As we all know, the way to get software developers excited is to provide them with a new playground, which is exactly what OS/2 is. But, even if you are shipping plain vanilla OS/2, the real new playground is OS/2 with Presentation Manager and possibly the additional features in OS/2 Extended Edition. Lots of developers, particularly ones that missed the boat on the Macintosh, are very excited about the possibilities presented by the large memory, interprocess communications, and connectivity possibilities inherent in OS/2.

But OS/2 1.1 won't necessarily solve your problem all by itself. What's really needed along with the technical and market opportunities is a sense of personal excitement about the environment and the kinds of applications that are developed for the environment. And this is where Apple excels (no pun intended): what most people run around calling hype is Apple's seemingly natural ability to get people excited about their machines. I happen to believe that the company can generate this kind of excitement because it has officially legitimized silliness. With a Macintosh II, which no one would argue is a frivolous computer, you can install such things as a system-software extension that makes your computer sound like it is throwing up when you eject a disk or a moose that will speak several random phrases or a screen dimmer that shows an (old-style) IBM PC bouncing around the screen or a beep-replacement that sounds like a gun firing.

Clearly none of this has anything to do with serious computing. But it does have a lot to do with letting people know that they are having fun when they use their computers and that there is more to life than a price-performance benchmark. Apple has created, in its system software architecture, a formal way for people to do silly things with their computers. The net effect is that Macintosh users feel that they have customized or personalized their computers to a much greater degree than PC users. Indeed, PC users often reflect the attitude that they're just using a piece of impersonal office equipment with no greater or lesser personality than the copier or telephone.

IBM needs to inject some of that personality into its personal computers. It's okay to use the word Zoom, instead of Maximize, when you want to tell people how to make a window expand to the full screen. You don't have to bar the possibility that people might write slightly off-beat startup procedures. Be human. It makes using computers a lot more fun. It's that element of silliness, ultimately, that will help get the leading nerds to come back into the IBM fold and that will begin to encourage them once again to develop their best, leading-edge applications software for IBM machines first, instead of Apple machines.

SUBSCRIBER NOTE

I'LL GET TO THE IMPORTANT STUFF NEXT ISSUE.

As you can tell by now, I've dedicated this entire issue to the coverage of user interface. That means I've had to forgo writing about a string of interesting events that occurred recently, including the Microsoft/Ashton-Tate announcement of SQL Server, Apple's and DEC's announcement of a strategic relationship, Apple's announcement of three new laser printers (and IBM's announcement of a $1,000 cash rebate on its laser printer publishing package), Claris Software's coming out with upgraded and new products, and developments in forms processing and color processing. I'm also running to catch a plane to Tokyo and won't be back until February 4. Given all that and what might happen while I'm in the Far East, I'm going to try to catch up on all these subjects in my next issue. Wish me luck.