

# COMSHARE®

## MEMORANDUM

5-7-93  
CONFIDENTIAL

78

DATE: October 16, 1978  
TO: R. Jeffries, D. Devine, and R. Eidswick  
FROM: R. Crandall *RC*  
SUBJECT: Heavy Human Factors Code

cc NORM ✓  
Dennis ✓  
Peter Bray ✓  
Mac ✓

IT'S HARD TO  
BELIEVE THAT WAS  
15 YEARS AGO!

*Red*

You all know that I've been trying to chase down any external code we can find that would add to our knowledge of human factors—particularly as they relate to ease-of-use in graphics and reporting. Well, these efforts have finally struck a vein of gold—located at the Xerox PARC (Palo Alto Research Center) in conjunction with XDC (Xerox Development Corporation) which is a small (15 man) development corporation that actually reports directly to Peter McCullough—the Xerox CEO.

They have employed some psychologists, some industrial automation people and they've been given a carte blanche with the various new equipment development units with the goal of guess what?

### Producing a Breakthrough in Ease-of-Use in Office Systems!

They've made some impressive progress, much of it supported by many live tests in controlled conditions with each of the following five targets:

1. The Executive
2. The Manager
3. The Professional Staff
4. The Personal Secretary
5. The Clerk

Note the similarity to our targets (The Executive/Manager; the secretary, the professional staff).

The following notes describe my inferences and observations from what I saw and heard. This information must be kept confidential. I promised confidentiality and if we maintain credibility now we may even become a test site for a whole "office of the future package."

First I'll mention the salient points to Quadrant's design, then I'll discuss the longer term impact of the Xerox project on timesharing, data management, electronic mail, the forms industry, etc., etc.

## 1. Human Input to the System

Xerox has already gone through some of the research that Batelle was going to do for us—they looked at the keyboard, the light pen, the touch screen, the rand tablet, etc., etc., and they have concluded that the best input method is a combination of the keyboard (for data entry) and the "mouse" for commands.

For those of you who don't know what a mouse is, it's a little smaller than a cigarette pack lying on its broadest side, with three buttons on top and some bearings to glide on underneath. It is wired to the terminal screen and any two dimensional motion you make with it will move a little arrow in exactly that direction on the screen.

The real advantage is that it is amazingly precise and you never have to look at the mouse—you can keep your eyes on the screen. Even when you are making a selection of something on the screen, you move the arrow to that thing and push one of the three buttons—obviously without having to look at the buttons.

In effect the mouse is an ideal combination of a precise and fast moving cursor with a three function key pad.

I was immediately sold on the idea and you would be too as soon as you saw how much you can do with this simple device. Their game plan is to train every secretary in the country how to use the mouse.

## 2. Local Files

The Xerox device also is a simple data management system as far as local (to the terminal) files are concerned. Down on the bottom of the screen there is a picture of a file cabinet (amongst other pictures which I'll explain later). If you touch the file drawer with the arrow, you get a display of the subject names of every folder in the drawer. If you touch one of the names, you get a list of headings of each document in the folder. Finally, if you touch a heading, you get the document itself on the screen.

In effect you have a four level storage structure (the cabinet, the drawer, the folder and the document) without even using a file name or without ever using a real command. You can sort the documents and move them around in the cabinet just by using the ubiquitous little arrow.

We could implement such a system for Quadrant's locally stored slides, using the graph titles as headers.

You have the option of naming the file drawers and folders (like in a real filing cabinet situation).

### 3. Printing

The bottom of the screen has some pictures of various printer types in various locations and all you have to do to get hard copy is touch the right device with the arrow. The terminal takes care of sending off the document with proper I.D. for printing. Still no commands. Occasionally when there are options, they flash up a row of choices that you can touch with the arrow:

IMMED.	24 HR	35 MM	PAPER	MICRO	.....
--------	-------	-------	-------	-------	-------

### 4. Forms and "Rules"

You can design your own forms by using the mouse to move lines around until you've got the grid you want, then you touch the calculator option and a calculator pad shows up on a part of the screen. You then touch the space on the form and you are put in a mode of describing whatever you know about the space. If you know the field must be numeric only or within a range, etc. you tell it with a combination of the mouse and prompting from the keyboard. If the field is to be calculated by the form rather than input from the user, you can refer to other fields with symbols (A1, B2, etc.) and then define the math operations by "arrowing" the calculator symbols. These rules then become part of the form.

When you are done, you have not only described the appearance of the form but the data entry rules and the calculation rules that go with it. From then on the users merely fill in the blanks to use the form.

October 16, 1978

It's a neat implementation of Dataform, again with no typed commands. To format a report you merely touch the part of the report that needs moving, push one of the mouse buttons to indicate "attach," and then move the mouse which moves that section of the report. The move becomes part of the new standard report form.

### Other Nifty Items

Another of the bottom pictures is a mailbox. If you address a letter and "drop" it in the mailbox with the arrow, it is sent, via FAX, immediately. You can select many fonts easier than changing an IBM golf ball and you can store photos in a fine dot matrix (with the resolution of a newspaper photo). The screen is high resolution black and white (80 lines/inch) and the local storage media can handle the picture dot matrix along with the text.

Obviously a document can have a graph but you have to build the graph with the arrow. This is interesting but is a real weakness in the system. They've not thought through the graphics and were very interested in our work. They have no plans to add color to this device although they have some fascinating color printers as possible followers to the 6500. (For instance, they have a device which links a 6500 to a 9400 for multiple color copying at low costs!)

They are considering working with us, perhaps even installing one of their systems at COMSHARE thereby allowing us to work on a color graphics adjunct.

I am convinced that Xerox is serious about revolutionizing the human factors associated with office equipment and word processing and we have the opportunity to be at the forefront in integrating this new technology with our capabilities.

This kind of work will be the technology of the 1980's—and the really successful way to put DDP in the hands of the end user.

### Follow-up items:

1. Can we get a mouse for the RAMTEK or COMPUGRAPHIC?
2. Can we get a development relationship with Xerox?
3. What are the detailed specs on follow-on color printing technology?

Memo to R. Jeffries, D. Devine and R. Eidswick

Page 5

October 16, 1978

Meeting Attendees

Jim Campbell — V.P. Advanced Business Products

Jim Kyle — V.P. Planning

Walt Menetry — Xerox Development Corp.

Bob Adams — Advanced Product Marketing