

digital

INTEROFFICE MEMORANDUM

DATE: July 2, 1968

SUBJECT:

TO: Harry Mann

FROM: Ken Olsen

I don't believe we should get out of the guard business, but how did we ever replace reception girls with Pinkerton people? It seems to me that they don't give as nice an impression to visitors as sweet, attractive girls.

Also, what is the schedule for getting a numbering system for addressing interoffice mail?

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: July 9, 1968

SUBJECT: PLASTIC MODULE

TO: George Wood

FROM: Ken Olsen

The Operations Committee has decided to postpone work on the plastic module for several months, at which time we will again review the situation.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: July 10, 1968

SUBJECT: JAPANESE PERIPHERALS

TO: Howie Painter

FROM: ✓ Ken Olsen

Please collect information on Japanese peripherals that we might be interested in buying.

Ken

ecc

KO - reclassification
to engineer



INTEROFFICE MEMORANDUM

DATE: July 10, 1968

SUBJECT: RECLASSIFICATION TO ENGINEER (corrections to memo on same subject dated July 8)

TO: Win Hindle

FROM: ✓Ken Olsen

cc: Graydon Thayer
Operations Committee

The Operations Committee was favorable to the idea of a formal technique for reclassification to engineer. Here is my summary of the decisions of the Operations Committee.

A proposal for the promotion will come from the Line Manager. The qualifications for the promotion will be reviewed and documented by the Engineering Review Board, and final approval will be made by the Operations Committee. This is a very important procedure, and is worth this many steps. Normally, the individual involved will not know his name is under consideration.

The suggested Engineering Review Board membership is:

Don White, Chairman
Graydon Thayer, Nonvoting Secretary
Dick Best
Joe St. Amour
Roger Cady
Jerry Butler
Alan Kotok

The first activity of this Board will be to define the qualifications of an engineer. Defining these qualifications may be a significant step toward raising the professional level of all the engineers within the Company.

Some of the qualifications which I would include in the list are:

- .. technical knowledge of his field
- .. objectivity to review all possible solutions to engineering problems
- .. demonstration of design and project performance
- .. ability to schedule
- .. ability to write reports
- .. good experimental technique
- .. reasonable notebook technique
- .. attitude and competence to efficiently give information to Drafting and Technical Writing Departments.

Ken

ecc

KO - Disk +
peripheral business



INTEROFFICE MEMORANDUM

DATE: July 16, 1968

SUBJECT: PERIPHERALS

TO: Pete Kaufmann

FROM: ✓ Ken Olsen

cc: Joe St. Amour
Operations Committee

Here is a list of peripherals that I think we should be working on.

We need immediately, and continuously, IBM-compatible tape units. We now have a 45 ips machine by Hewlett-Packard, and will soon have a 75 ips machine by Digital. We should start an immediate program that would make a new DEC machine for both these uses. If we laid it out cleverly, the cabinet, and many of the components, would do for these two machines, and maybe a faster (and even a slower) machine. The problem gets compounded because they need both 7 and 9 channels, and there are various densities.

The second line of equipment which we absolutely have to have is disks. We have to make sure we know what we're doing with the small disk we're now manufacturing, and that the source of disks and manufacturing techniques are stable. In addition, we're pretty much committed to making the bigger disk, and we have to work the bugs out of this. We can work on even larger disks, or disks which would have a single, movable head on either a fixed disk or a removable disk. These are pleasant-sounding options, but are not vital.

Having DECtape is, of course, vital because we're shipping it, and we should be sure it is always under control. In addition, we should consider a cheap DECtape. This should use the same reels, and maybe the same drive motor system, but have small, round tape guides like we use in the TU79. It would have no redundancy, and would have 10-serial channels rather than 5 redundant, paralleled channels. This unit may then be very competitive with the cheap tape which Mike Ford is using. After we study both of these, we can decide which one is most worthwhile. The cheap tape may be the cheapest, but the other one may be more reliable and have the look of being more proprietary. We may want a 10-channel head on the cheap DECtape, or we may want to move a single head 10 positions.

The list of peripherals that would be nice but are not vital are: the line printer (or several line printers at various speeds), a typewriter that would be more reliable and cheaper than Teletype, and a remote terminal that would have the nice features of the one we made for Rand Corporation (people love to use the IBM typewriter on this, but hate to use the Teletype typewriter).

We also need something in the way of displays. It is not absolutely vital, but they are very good products for us. We have two products well underway under Pat Greene. We

also ought to consider a redo of the 340, and we ought to reconsider all the other possible displays and keep an overall picture of where we are in what markets.

Everybody seems to be making disk packs, but I don't think we should get into that.

Someday you may want to make a card reader. We could use the principles of the card reader we're now buying, but do a better job of it, and include simple mark sensing in the same unit. Card punches look like such a low item that I'm sure we don't ever want to make that.

There is another project that isn't a peripheral but is common to our equipment, and that is power supplies. We should work on this continuously.

The conclusion to all this is that we have to solve our disk problems, we have to keep our problems solved on the DECtape, and we have to lay out a program that will get us several IBM-compatible tape transports cheaply and reliably.

Ken Olsen

ecc

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INTEROFFICE MEMORANDUM

DATE: July 16, 1968

SUBJECT: DONATIONS OF MACHINES

TO: Nick Mazzaresse

FROM: ✓ Ken Olsen

I received a copy of the note from Norm Doelling on "donations of machines." I'm assuming that you are going to push this. I feel it is probably a good idea, but I'm not going to show the initiative.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: July 16, 1968

SUBJECT: FOCAL DEMONSTRATION AT TRADE SHOWS

TO: Nick Mazzaresse

FROM: ✓ Ken Olsen

cc: Mike Ford
Norm Doelling
Rick Merrill

I had a meeting scheduled for June 17th to discuss how we're going to show off Rick Merrill's programming at trade shows. For some reason, this meeting was cancelled, but I never heard why. At the time, I assumed it would be called again a day or two later. The IFIPS Show is being held in Scotland soon, and I was hoping we would have a system figured out for demonstrating this.

I would like to reschedule this meeting for Tuesday, July 23rd, at 1:00 p.m., in my office.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: July 17, 1968

SUBJECT:

TO: Alan Kotok

FROM: ✓ Ken Olsen

cc: Win Hindle

There are a number of questions which I would like to have your opinions on. If you're free at 1:00 on Monday afternoon, July 22nd, I would like to have a bull session with you on these items. If the results are interesting, we may want to bring them up at the Engineering Committee the next morning.

I heard indirectly (through Alan Perlis) that Gordon Bell believes we're not doing advanced enough work in programming. Gordon didn't tell me this directly, but I would like to hear your opinion. The implication was that SDS set up some really sophisticated people to do truly advanced software. I see it differently, and, like the World War I soldier, I would rather be a live coward than a dead hero. However, we don't want to get behind, and we ought to let people know how good our software is.

I visited ARPA last week and talked with Barry Wessler who used to work at Digital. He suggested that we consider building a 24-bit computer. He said that very good work is being done at Berkeley to follow up on their 940 work. He said they have been very unhappy with the company in Texas who has been doing their work. He said that if we're not interested in a 24-bit machine, we ought to at least look at how they organized their memory. I would like to hear your ideas on this.

I'm not as up to date on byte standards as I thought I was. If I'm hearing things correctly, most of the world is still using 6-bit bytes. IBM has gotten many people to change over to 8-bit bytes, but now, if I hear correctly, the Government is standardizing on 7-bit bytes, and the new NCR and General Electric computers will be using this. Is the world really this confused?

I would also like to hear your ideas on what we should do in the communications field.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: July 17, 1968

SUBJECT: DISPLAYS

TO: *Bob Colby*
Mike FordFROM: *Ken Olsen*

cc: Operations Committee

Sometime ago, I asked for a report from Pat Greene showing how our display work fits in with all the other display operations. I didn't get the feeling from this report that I was looking for, but it might have been that I wasn't paying much attention. Will you dig up this report sometime (or have it redone), so that I, as well as the rest of us, can get a picture of where our displays fit in with the whole spectrum of other displays. This spectrum should include Raytheon, Sanders, MIT, Data General, and Adage, along with any others you might think of.

Ken

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INTEROFFICE MEMORANDUM

DATE: July 17, 1968

SUBJECT: DISPLAYS

TO: Nick Mazzaresse

FROM: Ken Olsen

I visited ARPA last week, and they showed great interest in what we're doing in all areas. I couldn't tell them exactly what we're doing in the display area, or what our plans and schedules are. Will you please write a few paragraphs for me that I can include in a letter to them, telling just what display work we're doing. When you do this, it might be good to also put in the Sales and Engineering Newsletters.

Ken

ecc

KOwe ARPA + GSA



INTEROFFICE MEMORANDUM

DATE: July 17, 1968

SUBJECT: ARPA

TO: Harry Mann
Operations Committee

FROM: ✓Ken Olsen

I visited ARPA on Thursday, July 11th, and am very glad I did. They influence a large amount of advanced work done on computers, and felt flattered that I stopped by to see them (they also used this to make points with their boss). They spend 20-25 million dollars a year on about 20 projects in the country.

This year, everybody wants Digital equipment. They said we are the only ones supplying equipment that their research projects want. They feel computers go in cycles, and we're at the top of the heap this year. I propose that we stay on top of the heap.

They feel very badly that they're not able to influence the military to the degree they should with results from their research work. One of the leading factors is that the military can buy only GSA-type computers. They very badly want us to work hard to get on the GSA list, or at least figure out reasons why it is impractical. They have assigned a man, Mr. Alan A. Blue (he has a Masters Degree from Syracuse University), to work on this problem, and that of militarizing computers. His telephone number is: area code 202, OX7-8654, or OX7-8663.

These fellas are very young (and look even younger), but are full of drive. They are not going to let tradition and red tape stop them from getting things done they feel should be. I told them we would assign someone to define the problems and see if we can get on the GSA list.

The GSA list is going to be more important than ever because there are strong pressures within the Government to standardize on computer specifications. The Bureau of Standards may do the specifying, but GSA is going to do the enforcing. This is actually law now, but no one is really carrying it out to any useful degree.

I think it would be good if you called ARPA, and maybe if you personally visited them the first time, to define the problems and zero in on what is going on. After that, you might leave it with a more junior person. I didn't realize until now just how useful it is to these people to have senior persons visit them. They are tired of the flimflam they get from Max Palevsky, but are truly pleased to have senior people show interest in what they're doing by visiting them.

July 17, 1968

When we can get the list of problems with GSA and the list of problems with militarizing our computers, they will then carry the ball to try to have these changes made in the Government. I suggest that we first try the GSA problems, and then try to work on the militarization problem. Dick Best might be a good one to work on that, or we might even hire someone special if we're serious enough about it. It might be good to militarize the new PDP-8/L. It is such a small, compact project that it would lend itself to this.

I believe it is impractical to militarize computers at the present standards, but, by making exceptions, and maybe even having the standards redefined, it should be easy.

ARPA is interested in working out roundabout ways of compensating for lack of profits, such as giving away software and other things. I think we have to be patient in listening to their ideas, but the ones I heard are a little strange. However, they were also interested in whether or not we would exploit the software developed by ARPA contractors. I said that I was sure we would be in many cases because of the customers who would be interested in it.

Ken Olsen

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INTEROFFICE MEMORANDUM

DATE: July 17, 1968

SUBJECT:

TO: Dimitri Dimancesco

FROM: Ken Olsen

In the latest issue of "The American Way" put out by American Airlines, there is a very nice paragraph about Digital in their article on the new Boston. We should be very careful, however, to be sure we give out accurate information. We are the fifth largest computer manufacturer in the world as far as numbers of computers are concerned, and we have to be very careful to always mention it this way.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE: July 18, 1968

SUBJECT: RECLASSIFICATION TO ENGINEER

TO: Engineering Review Board

FROM: Ken Olsen

The Operations Committee has approved a proposal by the Personnel Committee to establish a formal technique for reclassifying engineering assistants and technicians to engineer.

We will first establish an Engineering Review Board to review and recommend individuals for reclassification. (Normally, the individual involved will not know his name is being considered for reclassification.) We expect that proposals for promotion will come from the line managers. Qualifications for the promotion will be reviewed and documented by the Engineering Review Board, and final approval will be made by the Operations Committee. This is a very important procedure, and I feel it is worth this many steps.

The following people have been recommended as members of the Engineering Review Board:

Don White, Chairman
Graydon Thayer, Nonvoting Secretary
Dick Best
Joe St. Amour
Roger Cady
Jerry Butler
Alan Kotok

The first activity of this Board will be to define the qualifications of an engineer, Defining these qualifications may be a significant step toward raising the professional level of all engineers within the Company.

The qualifications which I would include in the list are:

- .. technical knowledge of his field
- .. objectivity to review all possible solutions to engineering problems
- .. demonstration of design and project performance
- .. ability to schedule
- .. ability to write reports
- .. good experimental technique
- .. reasonable notebook technique
- .. attitude and competence to efficiently give information to Drafting and Technical Writing Departments

Graydon Thayer will be contacting you soon to schedule the first meeting.

Ken

digital

INTEROFFICE MEMORANDUM

DATE: July 23, 1968

SUBJECT: REPORT FOR BOARD OF DIRECTORS' MEETING ON MONDAY, JULY 29

TO: Win Hindle
Stan Olsen
Nick Mazzaresse

FROM: Ken Olsen

I would like to have plotted each month cumulative bookings for the year, compared to the cumulative budgeted bookings. Our present bookings rate should be of prime interest to the Board of Directors on Monday, July 29th, so I would like to have the first sheets of them by that time.

The sheets which are distributed have room for three years. I would like to have last year plotted, the budget for this year plotted, and the results for the month of July.

If you do the first part immediately, we can compare graphs to make sure there is some consistency. Then, when you find out the results for July, we can add it just before the Board meeting.

Choose an appropriate scale on the vertical axis.

Ken

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INTEROFFICE MEMORANDUM

DATE: July 23, 1968

SUBJECT: PDP-10/I

TO: Win Hindle
Alan Kotok
Bob Savell

FROM: ✓ Ken Olsen

I would like to suggest that it is time for a proposal to be made to the Operations Committee on the PDP-10/I (August 21 would be a convenient time). Very soon, we should make the decision of whether the next machine we build is going to take advantage of new technology to make a faster PDP-10 or a least expensive PDP-10. I think the arguments for both machines should be presented to the Operations Committee so we can make an independent decision.

The assumption has been made that, for a faster PDP-10, it is easier to duplicate logic to make speed than to make a faster memory. I would like to have this argument reviewed by the Engineering Committee (August 20 would be a good time to review this). Part of this presentation should be a review of all possible ways of making faster memories so we can make a fair comparison.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: July 23, 1968

SUBJECT: NUMERICAL CONTROL MARKET

TO: Nick Mazzaresse

FROM: Ken Olsen

I am pleased to see the enthusiasm you and Charlie Kotsaftis have for the numerical control market. I would like to discuss this with the Board of Directors on Monday (July 29th).

Will you make a list of the market areas for numerical control and then identify which ones Charlie plans to cover in the next year. I would like this list to demonstrate how extensive the market is and identify those that Charlie is not going to cover so that we can fill these as we feel it is desirable.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: July 24, 1968

SUBJECT: PAPERS PRESENTED TO CONVENTIONS

TO: John Bellantoni

FROM: Ken Olsen

cc: Operations Committee
Murray Ruben

Most papers presented at conventions are very poor. They are ill-prepared, dull, and either too advanced in detail or elementary. I want to be sure that the papers we present are well-prepared. I would like to add to your list of responsibilities the obligation to read over every paper we are to present, and to arrange for a dry run (with slides and microphone). This presentation should be announced so that everyone in the Company who wants to can hear the talk.

Murray Ruben is presenting a paper in just a week and a half, and I would like to be sure he is included in this new system. His subject is particularly interesting, and we may get a large attendance from within the Company to hear the dry run.

I would also like to have you review all papers we present for publication.

Ken

ecc

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INTEROFFICE MEMORANDUM

DATE: July 24, 1968

SUBJECT: MANUALS

TO: John Bellantoni

FROM: ✓ Ken Olsen

cc: Operations Committee

I have heard the criticism of our technical writing that, although our training courses are informal and easy to understand, our manuals are formal, stilted, and not easy to read. This situation normally comes about because people feel the Company wants formal writing, but I want you to know that I encourage informal writing.

It seems that the Training Department often obtains information on a product for their training courses, and, independently, the Technical Writing Department gets the same information from engineers for a manual. Will you consider ways in which it might be possible to obtain the information just once for both uses. We may want to redesign our manuals so that they are more aimed toward training, and, at the same time, take care of other uses that manuals are supposed to.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: July 24, 1968

SUBJECT: MANUFACTURE OF MODULES IN THE UK

TO: Pete Kaufmann

FROM: ✓ Ken Olsen

cc: John Leng
Geoff Shingles

I don't remember the Operations Committee making a commitment to manufacture modules in the UK. If we're committing ourselves to this, it should be brought up formally for a decision.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: July 24, 1968

SUBJECT: APPROVAL FOR OPENING NEW OFFICES

TO: Ted Johnson

FROM: ✓ Ken Olsen

The Operations Committee has the feeling that they are not duly involved in decisions for offices and subsidiaries, and that commitments are made before these matters are brought up for formal decisions.

Some weeks ago, you mailed out a list of offices that you would like to open, but it is people's feeling that this was just one of many lists, and that no one list has been brought up for approval.

I would like you to present a formal list and get tentative approval for offices, with formal approval later. When formal approval is made, it should include the cost of making the moves.

The question of where European headquarters should be located is so complex that I want to insist on there being a formal, written proposal, and a formal decision made on this location.

I don't remember any decision to move to the other side of London, even though we discussed it often. I had absolutely no idea we were starting a Dutch subsidiary. Any discussions I have had about other offices, such as Frankfort, Geneva, and Milan, I do not consider as approval for these offices.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: July 25, 1968

SUBJECT: JAPAN INDUSTRIAL DEVELOPMENT, INC. (your memo dated July 11)

TO: Ron Wilson
Ted Johnson
Ron Smart

FROM: Ken Olsen

I would encourage visits like this proposed one from Japan, but we should be sure they take no more than one day. I would also be sure that, as a result, we receive an invitation to visit the corresponding plants in Japan. We should very carefully make notes of the people so we can take advantage of them in Japan.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: July 11, 1968

SUBJECT: JAPAN INDUSTRIAL DEVELOPMENT, INC.

TO: Ken Olsen

FROM: Ron Wilson

I have some reservations about this visit.

Will you please forward me your comments?

Ron

p1
Attachment

digital

INTEROFFICE MEMORANDUM

DATE: July 25, 1968

SUBJECT: ASSISTANCE IN FINDING A REPLACEMENT FOR GERRY MOORE

TO: Ted Johnson

FROM: Ken Olsen

Arnaud de Vitry has been after Gerry Moore to visit Dr. Heinrich Jakopp (he is one of EED's Directors) to help find a replacement for Gerry. Arnaud doesn't think he has done this, but we ought to take advantage of the offer.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: July 25, 1968

SUBJECT: TELETYPE MESSAGE 3590 DATED JULY 24, 1968

TO: Bill McNamara

FROM: Ken Olsen

It would be good to explain in the SALES NEWSLETTER the reason for your Teletype message to all offices. You might say that, because of the long time before we could possibly have modifications and manuals for our peripherals so they could be sold generally, it would be impractical now to actively solicit purchases.

Ken

ecc

DIGITAL MAYN
MSG 3590 7.24.68

TO ALL OFFICES FOREIGN AND DOMESTIC

FROM WILLIAM MC NARMARA

CC KEN OLSEN/ STAN OLSEN/
TED JOHNSON/ AL DEVAULT

EFFECTIVE IMMEDIATELY- DEC WILL NOT ACTIVELY SOLICATE PURCHASES OF FREE STANDING PERIPHERAL DEVICES. DEC WILL ACCEPT ORDERS FOR PERIPHERALS BUILT BY DEC BUT WILL NOT MODIFY THEM IN ANY WAY FROM THE CONFIGURATION IN WHICH THEY ARE SUPPLIED AS COMPUTER PERIPHERALS. THE ONLY AVAILABLE DOCUMENTATION IS ORIENTED TOWARD INTERFACING TO A DEC COMPUTER.

END

digital

INTEROFFICE MEMORANDUM

DATE: July 26, 1968

SUBJECT:

TO: Harry Mann

FROM: Ken Olsen

Arnaud de Vitry suggested we send our lawyer to Europe to learn about catalog and legal problems in countries we have to do business with.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: July 26, 1968

SUBJECT: ANOTHER PERIPHERAL

TO: Pete Kaufmann
Joe St. Amour

FROM: Ken Olsen

There is another peripheral which I haven't been able to describe, and still cannot describe. It is the general-purpose terminal device. The reason it is difficult to define is that no one device will solve all the terminal needs. Maybe the way to approach it is to define all the modules that could go into a terminal device, catalog them, and then, from these, we can make any terminal desired.

Some of the pieces are: keyboard, printer, TV display, light pen, DATA phone, incremental IBM tape, cassette tape, or DECTape, and maybe an RCA Alphachon storage tube (alpha-numeric).

Many of these parts are in Bob Collings' point-of-sale device.

Ken

mac

digital

INTEROFFICE MEMORANDUM

DATE: July 26, 1968

SUBJECT: HOUSEKEEPING

TO: Al Hanson

FROM: Ken Olsen

The stairs at the end of Building 3 (going down to the third floor of Building 4) are exceedingly drab. Could we paint that area with some brighter DEC enamel to make it look more inviting? Maybe the wall opposite the stairs should have some bright color on it, also.

The broken Sheetrock on the walls of the Drafting Department look poor to visitors (and to the rest of us).

Some of our workers have been eating lunch alongside the fence outside Building 11 and leaving their soda cans there. I suggest we clean up this area and put a GI can there for their use. If they don't use it, we ought to put a sign on the soda machine saying that it will be taken out if they don't dispose of the cans properly.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: July 26, 1968

SUBJECT: FAN FOR CONFERENCE ROOM A

TO: Al Hanson

FROM: ✓ Ken Olsen

If you haven't ordered the fan yet for the conference room across from my office, the fan I would like to suggest is from W. W. Granger, Catalog # 320, page 228. Their stock number is 4C011, and the price is \$53.55.

This unit is 24 inches in diameter, and has a two-speed motor so we can keep it at the quiet speed when extra ventilation isn't needed.

Ken

digital

INTEROFFICE MEMORANDUM

DATE: July 29, 1968

SUBJECT: REX CHAINBELT, INC.

TO: Nick Mazzaresse

FROM: ✓ Ken Olsen

cc: Bob Collings
George Rice

I received a telephone call at 3:15 on Friday afternoon, July 26, from Mr. Wes Broom of the Rex Chainbelt Company. They want to bid on the baggage-handling job for the Dallas/Fort Worth Airport. They are the company that did the carrousel baggage-handling device now used in airports. Their system will use 10,000 carts, one for each customer, and they will be shuttered around on tracks and switches.

They have been working with Cutler-Hammer, but are losing interest in them because Cutler-Hammer is also working with a competitor.

Unfortunately, the bid is to be turned in next Tuesday, July 30, and is to be done in two steps. First of all, proof of feasibility, and secondly, the final job. I suggest we have someone ready to go up there on Monday to talk with them about this.

Their General Manager of the Research Laboratory is Warren J. Harwick, and their address is: 4701 West Greenfield Avenue, West Milwaukee, Wisconsin 53201 (telephone: area code 414, 384-3000).

Ken

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INTEROFFICE MEMORANDUM

DATE: July 29, 1968

SUBJECT: DATRON, INC. - 881-3160

TO: Menno Koning
Joe St. Amour

FROM: ✓ Ken Olsen

I got a call from Mr. Seldon Lazarow of Datron, Inc., in Ashland, on Thursday, July 25. They are a company just a few months old, and are going to manufacture a line printer. It will have 120 - 132 columns, and will run at 200 lines per minute.

Two of the three principles are from Anelex.

I plan to have lunch with Mr. Lazarow on Monday, August 19.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: July 29, 1968

SUBJECT: SWITCHES

TO: Bob Hughes
Jack Shields
Roger Cady

FROM: ✓ Ken Olsen

A fellow from Field Service was replacing some switches in a PDP-8 outside my office recently, so I picked up a switch to look at under a microscope.

My guess of what has happened to these switches is that there was not enough grease put on the buttons during manufacture. The buttons were greased where they initially touched the contacts, but when they rotated some ungreased and slightly-corroded portions of the button come in contact with the contacts. This corrosion was so small that one wouldn't normally worry about it, but with only three volts across the terminal it is intermittent.

I suggest we take a handful of switches that have been taken out of computers and leave them in a jar of hydrosulfide (or just sulphur) until all ungreased areas turn completely black, and then look in the switches to see how much protection the grease has given.

I also suggest that we immediately have the contacts gold-plated, and that we outlaw contact cleaner from Field Service and customers. We should also immediately put a cover on the sides of all switches to keep dirt out.

How big a field change would it be to put 15 or 20 volts across the switches of the PDP-8 instead of the three volts now used?

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: July 31, 1968

SUBJECT: NORELCO CASSETTE TAPES

TO: Nick Mazzaresse
Mike Ford
Joe St. Amour

FROM: ✓ Ken Olsen

cc: Bob Collings

As we consider a cheap tape, we should also consider using the new Norelco cassettes. So far, we talked about using the 8-channel automobile-type cassette and making a new, cheaper version of the DECTape. Norelco has a number of interesting advantages. I bought a recorder several years ago with this use in mind, but never got very excited about the idea because it seemed to be just a local Dutch idea, like wooden shoes. However, it has now caught on and seems to be overtaking the whole home tape recorder business.

My survey at Lechmere Sales showed about 12 different portable models of recorders. This unit uses a very tiny plastic cassette with two reels. It is, therefore, not an endless tape such as the automobile unit. When it comes to the end of the tape, it stops, then one must manually take the tape out and put it in upside down to play the second pair of channels.

It runs at 1.75 inches per second, and is available in two lengths of tape; one for two 1/2-hour sides, and one for two 3/4-hour sides.

The reels are very lightweight, and hardly any inertia, that it would be practical to drive these with a lightweight friction drive.

The unrecorded cassettes cost between \$1 and \$2.

This might be replacement for paper tape in the numerical control business.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: July 31, 1968

SUBJECT:

TO: Jack Smith

FROM: Ken Olsen

cc: Bob Hughes

When I was in Canada yesterday, I noticed that they're using tab terminals in the power supplies. These are made for soldering, but they were using them for insertion of tabs. Have we changed our policies in allowing this, or is this done by mistake or oversight? By policy, we should look at it very carefully to make sure it really works.

They are heating all tab connectors whether they are soldered or used with a tab. This might be a good idea, but it should be evaluated and done with purpose, not because the model happened to have been done that way.

Ken

ecc

digital INTEROFFICE MEMORANDUM

DATE: July 31, 1968

SUBJECT: SYSTRONICS ³¹³⁻ - 769-1503

TO: Nick Mazzaresse

FROM: ✓ Ken Olsen

Ted Smith of Systronics called on Friday, July 26, to find out our interest in doing some systems work for them. They are a new, small company (in Ann Arbor) with a console which a number of people in the brokerage business are using, or are interested in.

Ted Smith came from Raytheon, and is now, I think, Executive Vice-President at Systronics. They have talked with Bill Landis about computers as concentrators in their stock brokerage business, but would like us to take more of the systems responsibility. They now see orders for 50 concentrators, and can see the need for 250 later.

We have not taken systems responsibility for 680's, and I'm not sure whether or not we will get the order if we still continue to refuse this.

They started in October 1967, and now have 65 people. They are aiming toward a volume of \$25 million.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: July 31, 1968

SUBJECT: LAMINATED FERRITE MEMORIES

TO: Tom Stockebrand

FROM: ✓ Ken Olsen

cc: Joe St. Amour
Pete Kaufmann

Sometime ago we talked about using our printing on ceramic strate processes in making new memories. In the June 1968 issue of "RCA Review," there is an article on laminated ferrite memories (page 180). This is something which I don't think we're too interested in, but there is a good list of references, some of which may bear if we are ever interested in investigating this.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: August 1, 1968

SUBJECT: DR. BARRON WATSON

TO: Joe St. Amour
Tom Stockebrand

FROM: ✓ Ken Olsen

I always wanted to know the name of a good consultant on sophisticated mechanics. Rocky Yasui suggested a former professor of MIT, Dr. Barron Watson, whose telephone number is 864-3294. Rocky is suggesting him to take part in our hammer design. I suggest we file his name away for future reference.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: August 1, 1968

SUBJECT: PRODUCT LINE CHARTS OF BUDGETS AND ORDERS

TO: Stan Olsen
Nick Mazzaresse
Win Hindle

FROM: ~~Ken~~ Olsen

The charting of budgets and orders that we started a couple weeks ago didn't accomplish all the things I wanted.

From these, I would like to have immediate results of previous months' bookings, so let's set a date when it would be practical to get this out. I would rather have it fast than completely accurate.

The other thing I want is to have this done by the manager, not the Accounting Department. This way, they will be sure we receive the same information they do, and will be forced to look at it at least once a month.

When you can get your charts brought up-to-date, send them to Elsa, and then we can decide what date will be practical to ask for them each month.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: August 1, 1968

SUBJECT: VALIDITY OF PRICES

TO: Bob Collings

FROM: Ken Olsen

cc: Stan Olsen
Nick Mazzaresse
Pete Kaufmann

When we collect prices and bids for things like terminals, we should be exceedingly careful of the validity of pricing. Often, these prices aren't firm, and are not valid at all until we have run live tests under rather severe conditions on these various components. Cash registers receive exceedingly hard usage (and keyboards, printers, and the like, used in the electronics industry), and are probably nowhere rugged enough for this application.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: August 1, 1968

SUBJECT: INEXPENSIVE TYPEWRITER

TO: Pete Kaufmann
Joe St. Amour
Bob Collings

FROM: Ken Olsen

It is rather presumptuous to think that one can, at this late date, design a better typewriter, but our need is great, and now, with the inexpensive terminal under consideration, it is worth looking into the possibilities. I have been working on an approach to this for years. I am not sure I remember the details, and I have even more serious doubts as to whether the details fit together into a working system, but here they are.

This unit would use a single type wheel with one hammer. In the terminal which uses only adding machine paper, I would have the type reels rotated directly by a motor with a fixed hammer behind it. The paper would move from side to side in order to position the printing.

The paper would move smoothly in a vertical direction.

The paper would also move smoothly in a horizontal direction, and the type would be skewed around the wheel.

The result is that all motions are smooth and constant, except the back hammer. The paper would be moved by a double-cut screw, such as used in a level-winding mechanism. The carriage return would take as much time as it takes to print a line. A faster thread could be cut from the return direction, however. If the printing is coming directly from a computer, the computer might figure out how to print alternate lines in the backward direction to take advantage of the return time.

For a full-size typewriter, the hammer and wheel would move horizontally, in addition to rotation. The type wheel would be on a shaft about 16 inches long. On the left-hand side is a screw which moves the wheel one type spacing for each revolution, and on the other side is 8 inches of shaft with a spline cut in it. A pulley drives the spline to rotate the shaft and wheel. A split nut grabs the thread on the left-hand side, making a horizontal motion. For carriage return, the split nut is released and the spring returns the wheel to the left-hand side. This whole mechanism must hammer against the paper, or else a single hammer must move along the back of the paper in parallel with the type wheel.

It might be possible to have two hammers and two circles of type so that it would only be necessary to have 32 characters around the wheel, rather than 64, and therefore gain some speed. Logic would have to be a little more complicated to remember when to hit the

Pete Kaufmann

- 2 -

August 1, 1968

hammers, and, at times, we may print characters to the right before it is typed to the left.

Complexity enters in if you want to do things such as back-spacing and typing over.

Ken Olsen

KHO:ecc

digital

INTEROFFICE MEMORANDUM

DATE: August 1, 1968

SUBJECT: STANDARD DIGITAL CABINET

TO: Stan Olsen
Nick Mazzaresse
Win Hindle

FROM: ✓ Ken Olsen

We now have a new standard Digital cabinet coming along. It looks good, as well as inexpensive. Who is going to market this, how do we get it into our present line of computers, and how do we sell it to the world?

Let's make this an agenda item for our next Operations Committee meeting on August 14th.

Ken

ecc

cc: Ted Johnson

Please discuss this at your Marketing Review Committee on Tuesday, August 13th.

KHO

digital

INTEROFFICE MEMORANDUM

DATE: August 2, 1968

SUBJECT: LIBRARY MARKET

TO: Nick Mazzaresse

FROM: Ken Olsen

The library market is one we haven't duly considered, and here is an expert (whom I think I met at Church) who might help introduce us to it. It might be good to have a marketing specialist assigned directly to this.

I'm afraid he has the idea everyone else in our business has gotten; that they have to make an invention to make a fortune.

Ken

ecc

c: Jim Meyer

digital

INTEROFFICE MEMORANDUM

DATE: August 2, 1968

SUBJECT: NEW DECUS BROCHURE

TO: Angela Cossette

FROM: Ken Olsen

I don't know what kind of reaction you're expecting me to give your new brochure, Angie. I think it is very good, and suggest we use it widely in our advertising; however, I do feel the colors should have been brighter.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: August 2, 1968

SUBJECT: SI LYLE

TO: Nick Mazzaresse

FROM: ✓ Ken Olsen

I didn't hit it off too well with Si Lyle. It might be just that I was watching the clock and trying to get out of here to catch a flight, but he sounded terribly happy with the way Litton does things and would like to do the same job here.

It sounded to me as though he would like the freedom at DEC to roam around the world and introduce new products to us that we should go into. I told him very clearly that "we ain't got no such position;" we only have doers, not tellers. He may have sensed my irritation.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: August 2, 1968

SUBJECT: VISUAL DISPLAY AND BIGGER DISK PROJECTS

TO: Nick Mazzaresse

FROM: Ken Olsen

Pat Greene didn't do very well at Schedule Review this morning. It reminded me a little of our meeting with Steve Lambert. I'm afraid that if we probe deeper, there may be a lot more problems than we now realize.

I would like to have you schedule a design review for both projects, and then have a detailed report made to the Operations Committee some Wednesday late in August when most members will be present. At that time, we will decide what we are doing all this work for.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: August 6, 1968

SUBJECT: ANNUAL REPORT

TO: Harry Mann

FROM: Ken Olsen

I didn't get a chance to see the last copy of the annual report. Will you have a copy sent to me in Scotland as soon as it is ready (or Finland, depending on where you think you'll hit me).

I'm enthusiastic about all the things promised for the annual report, but the actual way things were put in the President's Letter were not at all the way I would say them.

I don't think it is in good taste for us to tell how well we are managed. We can tell the things we do, and then tell the results, indirectly telling people how well we think we manage things, but to say that we are really that great is not quite the way I think we should do it.

Ken

ecc

DATE: August 6, 1968

SUBJECT: SINGLE-CAPSTAN MAGNETIC TAPE

TO: Joe St. Amour
cc: Pete Kaufmann

FROM: Ken Olsen

I would like to suggest that you do some experimenting with a single-capstan magnetic tape in which the recording head is a spring-loaded contact with the center of the capstan surface.

I feel confident this system would work well for low-speed operations and incremental tapes. In fact, it would solve one of the basic problems of the incremental tape (the tape stretches near the recording area). If experiments are run carefully, we could then decide how fast the system would work. If it could work for our normal IBM-compatible tape transports, it would lend itself to exceedingly simple units. I feel it would work at low speed because the standard head is very heavy and would stay in contact even though there may be unevenness in the capstan. If the heads are made like disk heads, which are very lightweight and heavily spring-loaded, they might operate at exceedingly high speeds. If the capstan is carefully ground on its own shaft, it could be made very true, and there would be very little vibration in the head.

For very slow speed or incremental tape, two 6-inch reels could be mounted between or across a 19-inch panel with two short vacuum columns and one of these capstans. The operation could be very simple and compact.

For a somewhat bigger unit, two 8 1/2-inch reels could be mounted one on top of each other in a 19-inch panel.

For the next bigger unit, two 10 1/2-inch reels could be mounted one on top of the other, and these would be about the size of Datamec's that we use.

For the full-size units, the loading could be completely automatic. In every case, the head has to be withdrawn from the capstan, and this can best be done automatically. For loading, the tape could be run across the tops of the vacuum columns and across the top of the capstan. This would be a completely straight line. When the vacuum is turned on, the vacuum columns are filled, the capstan is given a 180° wrap of tape, and then the head is put down automatically. For high-speed rewind, the head is lifted, the tape is out of the vacuum columns, and there is a completely straight path between the reels.

With this system, one could make a very easy tape loop replacement for disk storage. The loop would go over a capstan with the off side out, the head in contact with the out-

side, and then the bottom end of the loop is held tight by air pressure blowing on the inside. The nice thing about this system is that nothing is touching the outside surface of tape except the magnetic head. For a tape loop memory, several lightweight, widely-spaced heads can be placed around the capstan, like they are on the disk, because they don't have to be compatible with the other tape units.

For the slow, or stepping motor, unit, I would consider driving the capstan directly with a 1,000-step United Shoe Machinery stepping motor. For the much faster units, we can use the traditional single-capstan motors.

Ken Olsen

ecc

DATE: August 14, 1968

SUBJECT: GERBER SCIENTIFIC

TO: Nick Mazzaresse

FROM: Ken Olsen

cc: Mike Ford
George Rice
Richard Hill

While in Europe, I met Mr. Robert J. Maerz, Vice President of Operations at The Gerber Scientific Instrument Company, P. O. Box 305, Hartford, Connecticut 06101 (Telephone: area code 203 - 644-1551). They are going to drop 3 C's computers for their drafting tables because of lack of software (I didn't think to ask him exactly what they were lacking). It seems to me that most of their applications have standard software anyway. It might be that some of the customers are asking to be able to do other things with their computers.

I spent quite a bit of time with him, and accused him of not considering us because we also sell to Universal Drafting. When I explained to him that the enlightened people in our industry are not concerned about buying from competitors, or from competitors' suppliers, he, of course, disavowed strong feelings in this direction.

*End of message
to R. Hill*

I think I got my message across. We have one important hurdle, however, and that is that their programming is all done for a 16-bit machine. They need 16-bit accuracy in each coordinate, and don't know how to do it with a 12-bit machine. I would suggest we find someone really clever to see if we can't show them how to do it with a 12-bit machine, and, if not, try to sell them a 16-bit PDP-8.

I asked several people in Europe what they thought of the 16-bit PDP-8, and they were all very enthusiastic about it. I asked Rick Merrill to put his ideas down on paper. I suggested that we just add addressing bits onto the standard order code of the 8. Out of this, we might allow one extra bit to do some special things. He immediately thought of about six special things that we should be able to do, each one taking one bit. We only have four more bits, and using up six sort of ruins the whole idea. I asked him to put his thoughts down on paper to make it easier to evaluate and to make sure they are not being inconsistent with each other.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: August 14, 1968

SUBJECT: 8/L POWER SUPPLIES IN 8/I'S FOR THE UK

TO: Bill Long
Roger Cady

FROM: ✓ Ken Olsen

Could we put PDP-8/L power supplies in the 8/I's that we sell to the UK? If we drove the memory and part of the 8/I with a single 8/L power supply, and then had an additional power supply to make up the extra power needed, this might fit in quite well. It might even be better to use in the US than the one we now have.

SDL is particularly interested in this. McGregor Ross there would be very happy if we showed interest enough in his problem to explore this.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: August 14, 1968

SUBJECT: FOREIGN AUTOMOBILE INSURANCE

TO: Ed Schwartz

FROM: Ken Olsen

cc: Harry Mann

Before my recent trip, I had Elsa call my insurance man to ask what I should do for insurance while traveling in Europe. He said that I should get \$100,000 - \$300,000 personal liability insurance from Hertz in Europe. He might be just the worrying type, and my U.S. insurance company might really have covered this, but we should look into it so that we know what to tell all our people who travel in Europe. Hertz never warns anybody in this regard, and we, as a Company and our employees, may be taking significant risks.

Years ago we made the policy that DEC would not pay for collision insurance that Hertz tries to sell everytime one rents a car. We did this because we felt we weren't large enough to insure ourselves for the small amount of insurance that this covers. We should review this policy again, and, particularly, we should decide whether people should buy extra insurance in Europe. In the States, I believe the extra insurance only covers the first hundred dollars and is not too important; however, Hertz has two insurance policies in foreign countries. One is personal liability, and the other is collision. Unfortunately, I am not acquainted with the details.

Ken

ecc

40 - Notes about
Europe trip

DATE: August 14, 1968

SUBJECT: NOTES ON IFIPS

TO: Operations Committee

FROM: ✓ Ken Olsen

I have developed some sympathy for people who don't want to live in England. I caught cold in London, and have been quite uncomfortable with it for a week now. We did have good weather in Scotland, however, but it was very cold.

We truly have an enthusiastic crew in Reading, but we still have a number of weaknesses that have to be overcome.

I feel it is good that we're changing leadership in the European headquarters now. John Leng was an excellent man to get things started, but does most things by himself, without formal communications or records, and is very definitely lacking in systems and procedures. He was exactly what we needed to get started, but now that we are larger, I feel someone more organizationally-oriented, like Jean-Claude, can do us a lot of good. We still have to see whether Jean-Claude has the ability to lead people. (Bill Long is enthusiastic about Jean-Claude's ability.)

I spoke with Jean-Claude and John Leng for sometime about our manufacturing of PDP-9's in Reading. They feel the PDP-8 is going along well, but that Pete Kaufmann is dragging his feet on the 9. When I questioned them in detail, I discovered they are really worried about quite different things, but we do have to be sympathetic with them. Jean-Claude felt we were holding up things in the States, and John Leng felt we were remiss in not sending an American over to head manufacturing. Jean-Claude was very worried about having to get permission for every step of the project. I think I got across to him our notion that he can include in his initial proposals for projects just what steps of approval he would like. If it sounds reasonable, we will go along with his proposal, but we have to know what we are committing ourselves to on the way. I told him that the project proposal, and then responsibility, lies definitely with the man in charge.

They will need a little encouragement on the PDP-9. The most worrisome thing I heard was concern about the reliability of our products. Even our salesmen don't know quite how to answer this. They sometimes make statements that they are indeed unreliable, but approach reliability after being in service for a number of months. This doesn't sound very convincing to the customer, especially when some of the equipment made locally appears to be more reliable.

The PDP-9 and modules seem to be the two most unreliable products. I think this is the red line of modules, because I don't think they've had enough experience with the M series.

I propose that we take some drastic steps in solving reliability problems in the PDP-9 and modules. We have many glib answers for all our problems, or else we force the salesman and customer to prove that we are reliable. Before they prove without a doubt that our products are reliable, they will, of course, give up talking, but they still have the feeling that our units are unreliable. This is a devastating reputation to have!

The people at STC said they would like to have a special computer built that is the same as the commercial ones, but more reliable. They said they might be willing to pay twice as much for this. If units are put through heat cycles, we might pick out the weak units, and this is something we may want to do for extra money. The reliability we now have is not good enough for communications and control applications that have to be run 24 hours a day.

They are also very concerned about the frequency sensitivity of our power supplies. We should consider building nonresonant transformer power supplies from now on.

We might be able to build PDP-8/I's with 8/L power supplies. This would solve the frequency problem for us.

We apparently don't react very fast to complaints from the field. McGregor Ross at SDL said that they, at times, on Teletype lines, get 80 volts which set fire to our modules. This, of course, is very embarrassing in the occasion where the equipment is supposed to be reliable. They apparently think they fixed this, but it took an awfully long time, and it is not clear yet as to what burns; whether our modules really catch fire, or if there is masking tape on some of them.

Our sales people feel the reliability of the PDP-9 is better in the States because we send an ECO team from place to place to take care of them. They would like to do the same in Europe.

The Swedes were disappointed that we turned off drums for the 9 because they feel that, with keyboard monitor and foreground/background, they would make good computers for shipboard use. The Swedes made the world's largest tonnage of ships last year, and our office there would like DEC computers on each ship.

I spent quite a bit of time with our new man in Sweden, and was exceedingly pleased with him.

Peter Hoskins, from our Reading office, has gotten a ruggedized box dimension from the Decca group. If we can put an 8/L in that box, they would like to use the 8/L in airborne navigation equipment. They now have an obsolete computer which is widely used for navigation, but would rather use an 8/L if they can fit it in the box. We should be sure to get an answer to them soon.

Our booth was quite popular. The chess game on the PDP-9 went over very well, and so did the music. It would be good if we could play the music and chess at the same time. Alan Kotok did a good job. The European people were impressed with how the Americans worked at the booth. Even though they had half a day off, they were at the booth all the time. This does wonders to build up the enthusiasm and give leadership to the Europeans.

The Tektronix scope went over very well with FOCAL. With the joy stick we had, however, the system was a disgrace. We should look over all equipment before we send it to shows, and not have a piece of cardboard junk like that joy stick. It is also wrong to send equipment like that that we're not ready to sell. We had it, but there was no price, no literature, and nobody there knew what we were trying to sell. From that point of view, I think the display part made us look a little bit like a typical, small European organization that didn't know what it had to sell. On the whole, we fit in pretty well with the European show. Very few companies gave any impression they really had anything to sell, but were more just showing off their technical developments. We, like the others, built up our technical prestige, but there wasn't really any straightforward product presentation. Maybe we were even better than other stands. Other people had some interesting products, but didn't even know which countries they were represented in.

There were a number of Russians at the show, but there were no Russian exhibits. John McCarthy is going to teach in Russia for nine months. He has a head of hair now that looks like a tumbleweed. He may get us an order for a PDP-10 from Russia. A number of people asked us about selling behind the Iron Curtain, but I suspect that most of them were interested in teasing Americans to see how liberal we are.

I visited a Russian exhibit in London, which was a surprisingly well-done exhibit in the way it was laid out. The satellites looked very well done and very sophisticated. Everything else looked quite backward from our standards, and my guess is that they are doing very little in semiconductors.

In Scotland, they advertise that every computer manufacturer is doing manufacturing in Scotland. The government is indeed putting pressure on people to do their manufacturing in the underdeveloped parts of the country; however, the obvious problem is that you can't get skilled workers to move there. We are not going to be allowed to expand in Reading, and we should force the people in the UK to make some long-term plans so we can tell when we will have to move. They still don't have the idea that they're running things. They want to give all the data to us, and then expect us to make the right decisions. They at least want us to do the things the way they want them done, even though there is a reluctance to commit themselves as to what they feel should be done. If we build much bigger in Reading, it is going to be very difficult to move.

When we make commitments to the government as to what our manufacturing plans are there, we should always leave the threat that we will leave if they don't approve our computer. If we have a group of people working for us that are in jeopardy of losing their job because of government action, this could be a very useful political pressure.

I spent a couple hours talking with Ion Barron from Computer Technology. He is indeed a character, with long bushy hair. In one of the British computer newspapers, they had a full-page color ad with him sitting in a sitz tub, with appropriate lack of dress, and "Union Jack" painted on the sides of the tub. They probably have a number of clever things in their machine, but they have yet to consider the peripheral equipment, and they have not yet solved their software problems. They are going to first try to sell to those fields which don't need peripherals or software.

A number of people in Europe are concerned about the large gap in our product line between the PDP-9 and the PDP-10. This is compounded by the belief they have that the 9 is obsolete. (Their belief that the 9 is obsolete is confused with their belief that the 9 is unreliable. Getting mad at them doesn't seem to help very much.) After listening to them, I think we should consider the 24-bit computer, and also consider a small 10/1 before we consider a large 10/1.

The European customers are not convinced that we have modules readily available as spares in Europe. I successfully argued one customer into keeping his mouth shut, but I don't think we satisfied him on this point. If we had a bonded warehouse or a stock in Europe that people could point at to really prove we are supporting our computers with reserve stock, I think it would help our position there.

Ken Olsen

ecc

digital

INTEROFFICE MEMORANDUM

DATE: August 14, 1968

SUBJECT: STC

TO: Stan Olsen
John Jones
Jim Cudmore
Bob Hughes
Dick Best
Jack Shields

FROM: ✓ Ken Olsen

During my recent trip to Europe, I learned that people at STC would like to have a special computer built that is the same as the commercial ones, but more reliable. They said they might even be willing to pay twice as much for this. If units are put through heat cycles, we might pick out the weak units, and this is something we may want to do for extra money. The reliability we now have is not good enough for communications and control applications that have to be run 24 hours a day.

They are also very concerned about the frequency sensitivity of our power supplies. We should consider building nonresinate transformer power supplies from now on.

We might be able to build PDP-8/I's with 8/L power supplies. This would solve the frequency problem for us.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: August 20, 1968

SUBJECT: ITALIAN TYPEWRITER

TO: Joe St. Amour

FROM: Ken Olsen

An electronic typewriter has the problem of using binary selection for 64 characters. The Teletype uses a rectangular matrix of characters, the IBM golf ball uses a sphere, and a few others use a cylinder. These usually approximate an 8 x 8 matrix.

It is difficult to make an eight-position linear binary selection mechanism. It is very easy to make a four-position matrix because it is simply a lever with one end, and the fulcrum moves in one of two positions, with the output at the far end of the lever. The differential gear mechanism is, of course, another two input addition circuit.

The Italian typewriter literature I sent you explains an interesting mechanism they used to make a matrix which was 4 x 4 x 4, instead of the usual 8 x 8, to obtain 64 characters. They put four planetary cylinders, which are four characters high and four characters across, inside a cylinder. To select a character, they position vertically in one of four positions, and rotate the four planetary type wheels with one of four positions. The resulting typewriter is very quiet and very fast, but very efficient. It types about 40 characters per second. It has very wide tape, which I think is 120 or 140 characters wide.

For the full width of the typewriter, there are six bars which flip in one of two positions to feed the binary inputs to the selection mechanism. Each pair drives a lever, and the output of it drives a rack which drives a gear that takes care of the rotary selections.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: August 20, 1968

SUBJECT: JAPANESE VISITORS

TO: Ted Johnson

FROM: ✓ Ken Olsen

cc: Ron Wilson

It might be a good idea to send a letter to our visitors from Kokusai and answer on paper the questions they brought up. I would even hint a little bit that one of the things that makes us reluctant is that we're not used to doing business with people who are that pushy.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: August 21, 1968

SUBJECT: ATTACHED MEMO FROM DAN WARDIMON ON FUTURE DECTAPE DEVELOPMENT

TO: Joe St. Amour
Dick Best
Tom Stockebrand

FROM: *u*Ken Olsen

I asked Dan Wardimon to put down on paper his ideas for improvement of DECTape. He is leaving us on the best of terms, and I suggested that he would remember us with much more love if he made a final technical contribution such as this. The enclosed memo is the result.

Ken

ecc

July 15, 1968

To: Ken Olsen
From: Dan Wardimon
Subject: Some thoughts about future DECTape development.

My memo from May 16, 1968 covers most of the problems associated with DECTape. By realizing these problems and by gaining experience during the years of DECTape operation, one thinks of some changes and improvements to be made if he had to redesign the transport:

A. The Guides

The present guides are expensive to manufacture (cost for one pair is at least \$100, that is for machining, handling, and inspecting). If they are black anodized, they cause tape sticking, if they are not anodized, there are reports about aluminum flaking and wear. In short, they are problematical all around. More over, the theory behind the guide shape and radius is that the tape flies over it during motion. Maybe! What is more important is that these guides could be avoided and replaced by 2 simple rotating cylinders mounted over ball bearings. They will incorporate a spring loaded shoulder to line the tape with respect to a reference line. The cost of such guides will be a fraction of the existing ones. It will never cause the tape to stick because there will not be any large static creating areas.

B. Increasing Tape Storage Capacity

This can be done in two ways: increasing the bit density and eliminating the redundancy. If both will be taken at the same time, one can shoot for quadruple the total bit capacity.

The difficulties in achieving such densities means more strict requirements at the head alignment since the skew will tend to be more critical. The present head mounting would not allow it. (As a matter of fact, at the moment, skew alignment is done in a very crude fashion with the aid of shims and the whole thing is a cut a try process and varies with time.) Some differential screw and locking mechanism should be added to the head block to implement the necessary alignment. This will be more expensive, of course, but it will be off-set by increasing the capacity and reliability.

Sometimes, we ship the customer an uncertified (or for that matter, unknow tape). If this tape has happened to have a bad spot at one location, the customer will never know it because of the redundancy. But, by operating under this situation, there is no more redundancy for this particular spot. That is, the redundancy is there to protect from original bad tapes. We pay dearly for this since it can be avoided by selling only certified tapes. Also, few years ago, we came to the conclusion that the redundancy was helping to

cover another operating problem with regard to the turn-around time; there was need for more signal output at the redundancy is useful is if, during the time of operation a dust spec or so interferes with proper signal playback, then information is not lost because the redundant channel is still available. It is my firm belief that we can live without the redundancy provided the transport design and operation is such that the redundancy is not needed to cover for its own faults. At any rate, the parity check at the end of the block will detect an error in read operation and rereading this block will correct the error. I hope the arguments against redundancy are clearly stated. It is a very important subject and opinions sometimes play a bigger role than facts.

C. Tape Reel Mounting

The present idea of the tape reel mounting is simple and desirable. The problem is that it does not always work properly. The accumulation of tolerances of reel and hub dimension, the reel material and tape torque during winding is such that there are many cases where after a reel has been wound it is impossible to remove it from the transport due to internal stresses which shrink the reel over the shaft hub. Although tougher reel material that has been introduced lately has improved the situation somewhat, it did not solve the problem for the thousands upon thousands of reels in the field. This problem really aggravates the operator beyond description and does a lot of damage to DEC reputation. (Sometimes the user resorts to a heavy screwdriver to pry the reel off.)

The solution, in my opinion, is to redesign the reel mounting. Some positive grip mechanism as in conventional tape transports might be a solution. Any cost would be justified in this respect.

D. Tape Format

The tape format at the present is very sophisticated, flexible and unique. It allows the user to have variable block sizes, reading and writing in both directions, etc. However, two points should be mentioned in this case. First as it turned out in most cases there is no need for this sophistication. Second if the DECtape main usage is big storage then the present scheme should be made simpler in order to reduce manufacturing costs and thus be in line with the general tendency in the industry. By simpler schemes it is meant fixed block size (like on the disc, for example) and simplification of the mark track coding. Unless a special program has been written for it, our customers are utilizing the reverse operation modes only for the search mode. Otherwise reading and writing are done in the forward direction only. Therefore if a format would be designated to handle only these requirements, the control logic might be simpler and therefore less expensive.

The facilities to record the format should be retained on the control because of some mal functions, the tape might be wiped out. Although eliminating this feature will further reduce the system cost and more over, it will force the customer to buy formatted reels from DEC.

E. Drive Circuitry

An improvement might be incorporated in the SCR motor driver; a scheme should be developed so that when the line voltage goes up and down the trailing torque would remain constant. If this idea will be incorporated, field torque adjustments will not be necessary as is now the case. So there will be 4 less pots less to fiddle around with, and DECTape operation will be the same within the specified line voltage variations.

It is hoped that incorporating some of these ideas in a new design will contribute to a better DECTape performance, and improve profitability.

To making core
memories

digital

INTEROFFICE MEMORANDUM

DATE: August 22, 1968

SUBJECT: NOTES ON MEMORY MANUFACTURING

TO: Bill Owens
cc: Operations Committee
Dick Best

FROM: Ken Olsen

It seems to me that manufacturing of memories is broken down into three parts: first is the manufacture of cores, secondly is the stringing of planes and assembling them into stacks, and thirdly is the mechanical and electrical component assembly. These are quite independent of each other and could be considered quite separately. The one interaction is that, after they are assembled mechanically, repairs have to be done at a plane level.

The engineers designing the computers have always bought the complete mechanical assembly, including the electronic parts, from a core manufacturer. The reason they did this was to save Pete Kaufmann all the trouble of doing these things internally and so they could buy a completely-tested assembly. The logic in this decision should be challenged. First of all, it would seem to me that Pete has more capability in bending sheet metal and putting electronic parts into etched boards than any of the memory manufacturers. Even more important, most of the delays in deliveries seem to result from this part of it. In addition, the unreliability and cost is often tied to their lack of skill in the things which Pete claims to be fairly good at.

Like all institutions, we are very reluctant to take on jobs where we can see the problems, such as doing the mechanical work on memories, but we are very enthusiastic about considering big jobs in which we don't understand the problems, such as making cores and stringing them. We have to be careful here to be sure we show the discipline and consider the relatively easy parts first before going on to the more difficult ones. One advantage of doing the mechanical parts is that it takes little capital equipment which wouldn't have indefinite life. If we got into the core and core-stringing business, the investment would disappear when cores become obsolete.

I don't want to discourage looking into core-making and stringing, and I'm sure that we should, as part of your study, consider the cost and schedule in doing this part of it also.

In addition, we should force a study from some of our senior engineers as to when new memory systems will be available. Univac is using plated wire memories, and several memory manufacturers see tremendous promise in this. IBM is now using linear select memories which are made automatically, and they see a tremendous future in integrated circuit memories, even though the integrated circuit manufacturers themselves don't say very much about this. We have to make a guess as to when new technologies will come in and make our plans accordingly. This also has a certain amount of fascination to beat the rest of the world at some of this. We have an inside track to the people at MIT doing

thin-film memories, and we might be able to plate wire rather easily if we put our minds to it.

We have a mental hang-up on considering new memories because, for the last fifteen years, we have been predicting that the core memory wouldn't die. However, I'm afraid we might be like the man who predicts it is unlikely he'll die in any one year, but every year he makes his prediction the odds are getting worse, and the fact that he was right so many years before doesn't help the odds at all. When he gets to be 97, the fact that he was right 97 times doesn't mean that he has great odds to live another year. If we want to go into making cores and stacks, which I must admit fascinates me, we would have one key advantage over all the core manufacturers in that we would make one type of core day in and day out. We would have one mixture, one firing technique, and one set of test equipment, and this would give us a tremendous advantage. IBM's memories cost them a fraction of what other people's cost, and this comes about because of the volume, but even more so because of the volume of any one type. We could gain much of these efficiencies if we did them ourselves and did only one type.

I talkēd with people from Plessey last week and think a few notes from them might be of interest to you. They are now using multiple station rotary presses which press upward against the flat plate. This gives a much higher die life. They use tunnel kilns which I think they said have a lithium belt. They fire them very quickly at high temperatures so they can have feedback from the testing of the output to the firing furnace. I think they said they refire so they can have the main firing done in ordinary atmosphere, and have a short refire cycle in a controlled atmosphere.

Our friend, Joe Sacco from Burroughs, was part of the RCA/MIT tradition that did batch firing in large Harper furnaces. He was dead set against continuous firing; however, in an article in "Ceramics" magazine by someone from Burroughs, they now admit that much of the world is using continuous tunnel furnaces.

Ken Olsen

ecc

digital

INTEROFFICE MEMORANDUM

DATE: August 26, 1968

SUBJECT: INFORMATION INTERNATIONAL

TO: Bill Melesky
Roger Melanson

FROM: Ken Olsen

Ed Fredkin from Information International was interested in our automatic drafting system because they have a printer which is very fast. He said it has the precision and quality of a very large Calcomp table, but it has an oscilloscope which projects it on microfilm. He said that if we would send them a magnetic tape, they would plot up the drawing for us to review. The machine costs over \$100,000 so I think it's doubtful we're that interested, but it might be good to look at it.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: August 26, 1968

SUBJECT: NEW DIGITAL CABINET

TO: Stan Olsen

FROM: Ken Olsen

We now have a new Digital cabinet which is low-priced and high quality. Will you have a presentation made to the Operations Committee on September 4th on how this will be marketed and what future plans are for other styles.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: September 4, 1968

SUBJECT: ANNUAL REPORTS

TO: Gabe d'Annunzio

FROM: ✓ Ken Olsen

cc: Harry Mann

When Jack Atwood was here, he had an excellent collection of books on annual reports. Most of these were published by paper companies, but were filled with good ideas (at least you felt they were good ideas when reading through them, but were probably not very good when you tried to use them). I was exceedingly displeased with Jack when he destroyed all his files when he left. Files, of course, are property of the Company, and he had no business destroying them.

Will you try to get another collection of books on annual reports and see what different paper companies have to offer so that next year we can get a head start in getting educated as to what the academic people say about annual reports.

Ken

ecc

DATE: September 4, 1968

SUBJECT: SPECIAL SYSTEMS GROUPS

TO: Nick Mazzaresse
cc: Operations Committee
Bob Collings

FROM: Ken Olsen

I have asked Brad Vachon to report once a month to the regular Friday morning Schedule Review meeting on the projects which the Special Systems Groups are working on. I asked him to start on September 13 and to summarize all he can in ten minutes. If this is not the best Friday, we can reschedule him for the Friday which has the least number of reports made.

There are two reasons why I would like to have this reported on. First of all, we tend to appreciate people who are in trouble more than those who regularly do a satisfactory job, and by coming to Schedule Review Brad will have a chance to brag about their accomplishments and still keep the air of humility.

The second reason is because I'm afraid that as we develop more "Special Systems Groups," people will look for the same freedoms and responsibilities Brad's group has. These freedoms and responsibilities have been earned by several years of success, and putting the title Special Systems on a new group doesn't automatically mean they have the same competence. By asking for more reports from this group, verbal and maybe written, we may learn some of the techniques which allow us to develop the confidence in new groups.

Ken

ecc

DATE: September 4, 1968

SUBJECT: PERIPHERALS

TO: George Rice
cc: Operations Committee
Joe St. Amour

FROM: ✓Ken Olsen

The Operations Committee is taking a lot of interest in peripherals. We, of course, feel we understand the business completely, and are all too happy to make decisions from our own good feelings. However, having a little information might influence us, although I won't promise this.

The one bit of information I would like to have is a chart which reviews what our PDP-8 customers have bought, what they have asked for, and what they have bought from others in the way of peripherals. Vermont Research says they are still getting inquiries about selling drums to our PDP-8 customers, which means there are gaps in our present product line, and it would be good for the Operations Committee to have a feeling for what these are.

We are also buying drums from Vermont Research (that we designed several years ago) because customers keep asking for them. Maybe these are products like this that should be updated.

We don't have a feeling for what customers want in the way of paper tape. Do they want faster or cheaper, and how many of them want spoolers? What is the demand for very high-speed punches and readers?

This chart would probably be more valuable if it were done in two steps. First, if you could collect the data that you have at your fingertips, along with your impressions, and get it out right away, and secondly, if you could then collect good data and get much more precise information to us at a somewhat later date.

Ken

ecc

September 11, 1968

Linear Selection Memories

Joe Sutton

Ken Olsen

cc: Dick Best

Here are some of the notes on **Linear Selection Memories**.

There is a lot more written on the subject, particularly in the February Proceedings of the Philadelphia Solid State Conference from 1960-1963 when **Linear Selection Memories** were the "big kick".

mdo

Copies of MIT memos attached

M-2110 "A Linear Selection Magnetic Memory Using An Anti-Coincident Current Switch" by Ken

6M-3505 "Experiments on a Three-Core Cell for High-Speed Memories" by J. Raffel and S. Bradspies

C
O
P
Y

digital

INTEROFFICE MEMORANDUM

DATE: September 16, 1968

SUBJECT: COMPANY MEMOS

TO: Nick LoRusso

FROM: Ken Olsen

cc: Harry Mann

We have a company policy that all memorandum should have a standard printed heading on the first page, with a title, the author's name and who it is addressed to, and usually it should have a summary or abstract.

We have become so careless with this that there are many memos around without date or author. It is exceedingly frustrating to figure out which one supersedes which, and where they come from; it is not uncommon to completely lack the three key items of information.

Will you be sure that all secretaries know that all memos have the standard format on the first sheet as well as these three key pieces of information. Also, if they are of any length at all, they should have at least a one sentence abstract as to subject matter. This latter part isn't so important as the other three bits but is is very helpful when people pick up the memo.

mdo

120 - Papers to
Professional Societies

digital

INTEROFFICE MEMORANDUM

DATE: September 19, 1968

SUBJECT: PAPERS TO PROFESSIONAL SOCIETIES

TO: Alan Erskine

FROM: Ken Olsen

cc: Operations Committee
Gabe D'Annunzio

The number of papers a man presents to professional societies is more a measure of the frustrations he has with his job than it is a measure of his professional accomplishment.

When a man can find no satisfaction in his job and can't see his ideas fill a need in the market-place, or when his goals are in no way parallel with that of the corporation, he must find his professional satisfaction somewhere else and presenting papers is a way to do this. In this way, he brags to his fellow engineers because he has no way of being measured by his colleagues and his bosses in the company.

There are times when we should encourage papers, but I can think of very few of these. When an idea is good and has the promise of making a significant contribution, we want to keep it secret until we can take advantage of it in the competitive world. Those ideas, which are of academic interest only, are not worth the time worrying about unless you want to confuse the competition.

Rather than considering the paper writers as the elite of the engineering industry, I think, with some evaluation, one would conclude that these are really the parasites. If you look at the papers that have been presented, I would guess you'd conclude that between 96 and 99% fail to make any contribution to the profession or the industry. We are taught that we should worship failure in scientific pursuits because it shows a great faith in science. However, those who are looking at science more critically are sometimes concluding that science is not the source of wealth, but rather - that only the wealthy can afford science because it is a rather useless though perhaps beautiful pursuit. What is presented at engineering societies is often neither science nor engineering.

I would not discourage someone from presenting a paper but I am, perhaps with overdue emphasis, trying to get across that we do not measure an engineer's success in this organization by the papers he presents and we exert no pressure on the engineers to do so, and, above all, presenting papers is no excuse for failure in carrying out his assigned responsibility.

mdo

digital

INTEROFFICE MEMORANDUM

DATE: September 24, 1968

SUBJECT: COMPUTERS FOR NEGRO COLLEGES

TO: Norm Doelling

FROM: *UK* Ken Olsen

Vern Alden called me on Monday, September 23, to say that the 13 Negro colleges now have money to buy computers. They are interested in a proposal for an educational discount for PDP-8/1's. The man to contact is Herman Granson at Howard University (telephone number: 387-8515).

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: September 24, 1968

SUBJECT: GERBER SCIENTIFIC

TO: Nick Mazzaresse

FROM: Ken Olsen

cc: Rick Merrill
Dick Hill (New Haven)

I called Robert Maerz at Gerber Scientific. They are interested in hearing our pitch for a 12-bit computer, and, in particular, my hints for a 16-bit computer. They are down on 3 C's, but are very seriously considering the Hewlett-Packard 2114, 2114A, and 2115.

I told him we would write him a letter describing our computers and their prices, and explain how difficult it is for us to do double-length arithmetic.

They find the 116 too slow, and the 516 just fast enough. For some reason, they do double-precision arithmetic for 16-bit computers, but he couldn't explain why. They normally use an 8K 516 with their own paper tape reader, extended arithmetic elements, sometimes with cards in and cards out, and an ASR.

The thing they like about the Hewlett-Packard is their inexpensive peripherals with the one-card interfaces.

Ken

ecc

digital

COMPANY CONFIDENTIAL
INTEROFFICE MEMORANDUM

DATE: September 26, 1968

SUBJECT: STEPPING MOTORS

TO: Tom Stockebrand

FROM: ✓ Ken Olsen

cc: Pete Kaufmann
Joe St. Amour

I am very enthusiastic about your work with stepping motors. I think we should keep this work secret because it gives us a tremendous competitive edge, and, even though there is great reason for you to brag about your work, I think it is better to keep our mouths shut.

What is the possibility of using a cheaper motor in our paper tape reader and making it run even faster, using the techniques you have developed?

It would seem to me that we could use a stepping motor to drive the single capstan in the TU-79. It seems to me it would only have to go about 2,000 steps per second, and we have about 20 steps to stop and start in. These would be readily available, and would be an awfully lot cheaper than the ones we're now buying.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: September 26, 1968

SUBJECT: SUGGESTIONS FOR IMPROVING ENGINEERING REVIEW COMMITTEE

TO: Engineering Committee

FROM: ✓Ken Olsen

cc: Operations Committee

We would like to change the Engineering Committee meetings to Thursday mornings so we can interchange personnel with the Marketing Review Committee.

One of the items I would like to talk about at the next Engineering Committee, which will be on Thursday, October 3, is a discussion as to how we can improve our Engineering Review Committees and how we can include some other activities in this review session. I suggest we not call each individual engineer down to the meeting, but start having only the supervisor come and report on all his projects. This would encourage the supervisor to know what is going on rather than giving him the feeling the Committee is really doing the supervising and he has no responsibility. Then I would like to have a written report, which would be simply answering a few questions in outline form. These questions would then be oriented toward results rather than all the good things which people sometimes feel are more important than results.

I would like to aim for more efficient use of time on everyone's part in schedule reviews, and secondly, I would like to have them orient people toward the results they promised when the project was first proposed. All the good things might be very well, but the Company is dependent on the results promised in the proposal, and, in some cases, may be very critically dependent on these results. By asking the supervisor a few specific questions, I think we might get this oriented and also make our reviews a lot more efficient.

If these written reports are sent out the day before the Review Committee meets, they could be read the night before.

Another idea would be to have a notebook for each member of the Operations Committee that would contain the original proposal, original schedule, and a file of the written reports. Then when they study the outlined reports the night before the meeting, they will have all the background material to make it possible for them to ask sound questions at the meeting.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: September 26, 1968

SUBJECT: CHEAPER VERSION OF DECTAPE

TO: Stan Olsen

FROM: ✓ Ken Olsen

cc: Pete Kaufmann
Joe St. Amour

The Engineering Committee was not interested in a cheaper version of the DECTape. It might be that they are just too tired to consider another product, when the one we have now has just been made to work reliably. If you would like to push this any further, here is the approach I suggest you take.

Even though I was originally dead set against two transports on one panel, I feel that if we take a definite approach, it will be perfectly feasible. When we originally had two on a panel, they were so heavy that people couldn't lift them, so it was difficult to manufacture them and very difficult to troubleshoot them. The new approach should be to make the panels with two transports, but to make them very lightweight. I would do this by, first of all, getting rid of the motors behind each hub. I would have a pre-packaged brake and clutch combination for each hub that would be tied to a common motor by a long belt. This, I think, would make a much faster-acting device, and it would be more reliable. The requirements are so sloppy that I don't think we have any of the problems that people normally expect from clutches and brakes.

The next thing I would do is to get rid of the fancy tape guides we now have and go to the post guides we previously used in the TU-79.

To make things extra safe, although this may be very much an overkill, I would consider putting a pump behind the motor and using air bearings on the post guides.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: September 26, 1968

SUBJECT: PROCEDURE OF INCOMING TELEPHONE CALLS

TO: Nick LoRusso

FROM: ✓Ken Olsen

I had a telephone call from one of our Directors the other day, and he was just a little bit miffed at all the questions he had to answer for the switchboard operator before she would allow him to talk to me. We ought to check and see what our operators are saying to people who call in.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: September 26, 1968

SUBJECT: REPORTING SYSTEM FOR CROSS-PRODUCT LINE MARKETING GROUPS

TO: Mort Ruderman

FROM: ✓Ken Olsen

I would like to develop a reporting system for our cross-product line marketing groups. I would like each member of the Operations Committee to have a notebook containing all the proposals and their schedules, and then, once a month, I would like a one-page report written by each of the managers that will show him and the Operations Committee how he is doing relative to the schedule. This will keep everyone conscious of the results that were promised and how close we're coming to them.

I would like you to propose a sheet to me with a few questions in outline form that might only take a small number of words to answer.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: September 26, 1968

SUBJECT: REPORTING SYSTEM FOR CROSS-PRODUCT LINE MARKETING GROUPS

TO: Norm Doelling

FROM: ✓Ken Olsen

I would like to develop a reporting system for our cross-product line marketing groups. I would like each member of the Operations Committee to have a notebook containing all the proposals and their schedules, and then, once a month, I would like a one-page report written by each of the managers that will show him and the Operations Committee how he is doing relative to the schedule. This will keep everyone conscious of the results that were promised and how close we're coming to them.

Please propose a sheet to me that has a few questions in outline form that might only take a small number of words to answer.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: September 26, 1968

SUBJECT: MODULE ADVERTISING

TO: Stan Olsen

FROM: ✓Ken Olsen

I suggest you advertise our module product line in the Electronic Engineers' Master.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: September 26, 1968

SUBJECT: VACUUM CLEANER MOTORS FOR TU-79

TO: Joe St. Amour

FROM: ✓ Ken Olsen

I understand that Field Service is very worried about the vacuum cleaner motors we're using in our TU-79. I suggest we put these on line test right away to find out if we're going to have a problem. We can go ahead and make the initial ones with these units, but if they are not good we can put in the expensive units.

We should also investigate to find out if we need all the vacuums they put out with full voltage. If we put in less voltage, they would run at less speed and put out less air, and, I believe, last a lot longer. These are series wound Universal motors, and they would adjust very nicely to lower voltage. (This is my guess from theory rather than experience.) One should be very careful never to use this trick on an induction motor because they tend to run at the same speed, and, with a fixed-speed fan, the motors will eventually burn out with lowered voltage.

I am also interested in this because when we make a **small**, cheap IBM-compatible tape unit, and when we make punched paper tape spoolers, I would like to see us consider vacuum columned take-ups rather than spring-loaded arms like other people use. A \$10 vacuum motor and a sloppy vacuum column are relatively inexpensive and very convenient. If we ran the vacuum cleaner motor slowly, it might be quiet, and should do the job very well.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: September 26, 1968

SUBJECT: DR. PHILIP BOGDONOFF, WHEELER ASSOCIATES

TO: Nick LoRusso

FROM: ✓Ken Olsen

I was rather irritated with this man when he called because he was very pushy and said he was going to solve all our office problems for us. I told him we have no office problems, and insisted that I told him that same thing last Spring. (I didn't hide my irritation with him.)

I acknowledged that we're always making improvements and finding ways to save money, and that he could try to sell his services to you, but said I was in no way encouraging it. My attitude is that there are so many things you can improve for a while without a consultant, that you might wait until you run out of ideas before you hire one.

Ken

ecc

Wheeler Associates, Inc.

Management Consultants

Area Code 617

Telephone 457-7549

9 Central Street
Lowell, Massachusetts 01852

24 September 1968

Mr. Kenneth H. Olsen, President
Digital Equipment Corporation
150 Main Street
Maynard, Massachusetts 01754

Dear Mr. Olsen:

I discovered in my file your June advertisement for an Office Service Manager which had been given to me. Subsequently, I asked Cliff Fahlstrom of Associated Industries of Massachusetts if he could suggest someone in your company with whom we might discuss our interest to help. His suggestion was to see Harry Mann to discuss such problems acknowledged by the advertisement and our capabilities which might be applicable.

Rather than be identified as solely interested in cost control for indirect labor situations, I decided to write to you and ultimately hoped to explain the scope of our competence. Unfortunately, our conversation on June 27, 1968, concerned the office problem. My notes indicate that I was to broach this subject again at the end of the summer, and I appreciate your directing me to Mr. LoRusso who agreed to see me on October eleventh. You may be assured that no *a priori* statements will be made about his area of responsibility or that he will be intimidated in any way.

At some later date, I should enjoy meeting you to describe the scope of our activities, such as inventory and production control systems, warehousing, Short Interval Programming, incentives, etc.

Again, thank you for directing me to Mr. LoRusso. I will keep you informed of the results of this meeting.

Very truly yours,

WHEELER ASSOCIATES, INC.


Philip D. Bogdonoff, Ph.D.

PDB/cb

digital

INTEROFFICE MEMORANDUM

DATE: October 1, 1968

SUBJECT: CLOSED-CIRCUIT TELEVISION

TO: Bob Fronk

FROM: Ken Olsen

cc: Operations Committee

I could never understand the advantage of television recording over photographic film. I do understand that editing is easier in TV when you're running different classes every day, or when you're looking at ball games and would like a replay, but when we are considering sending out canned messages, it would seem to me that 8 mm colored film would have overwhelming advantages.

First of all, it is in color, and secondly, the pictures are much better and can be almost as large as one desires.

Film is cheap, projectors are cheap, and we can mail films to customers if we want to.

For the price of one piece of video equipment, we could have a professional make a film for us.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: October 1, 1968

SUBJECT: COMPUTERS FOR NEGRO COLLEGES (your memo dated September 30)

TO: Norm Doelling

FROM: Ken Olsen

I worry more about sure things than those we have to work for, so please stay on top of this one, Norm.

Ken

ecc

DATE: October 3, 1968

SUBJECT: CORE MATRIX CHARACTER GENERATOR

TO: Joe St. Amour

FROM: ✓ Ken Olsen

Here is the core matrix character generator I was thinking we should use in an electro-chemical line printer. We should also study the Motorola approach because they may have a better idea.

We can't use the same character generator as the display uses because we need seven bits to come out simultaneously. We would like to have the group of seven bits to come out with adjustable timing so that we can take acceleration of the carriage into account.

We'll make an array of cores 5×7 , and string 64 wires through these cores to generate the 64 characters.

These cores have more or less rectangular hysteresis loop. When a character is selected, that wire is pulsed very hard so that the core is left in a positive flux state. There are seven wires coming from each of the horizontal lines feeding the styli on the printer. There are five lines coming out of the matrix which drive each of the five vertical columns.

When it is time to write the first seven dots, the first vertical column is pulsed. All those cores in a pulse state will put out a pulse on the appropriate horizontal wire.

At specified times, each of the vertical wires are pulsed in order and the appropriate horizontal wires receive their voltage pulses.

If we want to write with the carriage going backward, we just have to pulse the wires in reverse order and the same matrix will generate the character. This will increase the speed of computer print-out significantly.

Ken

ecc

cc: Pete Kaufmann
Tom Stockebrand
Dick Best

DATE: October 3, 1968

SUBJECT: MAGNETIC KEYBOARD

TO: Joe St. Amour

FROM: ✓ Ken Olsen

cc: Pete Kaufmann
George Gerelds
Bob Collings
Bob Cesari

People have been working hard for many years to develop keyboards that will automatically produce a binary-coded output. Teletype does this with a rather elaborate mechanism, others do it with coded vanes that interrupt light beams, and now Micro Switch has an integrated circuit and a hall effect crystal in each key that produces the appropriate signal.

Here is an idea that might make a much simpler device. It would consist simply of two printed circuit boards with matching holes through each. Around the hole in the top board is printed a coil which is pulsed periodically and generates a magnetic field in a ferrite rod. The lower etched board has printed a one-turn coil for each of the six outputs that code that key. This is a positive coil for the one and a minus coil for the zero.

When the ferrite rod is through the top one, but not all the way through the bottom one, there would be very little of the flux that will cut the coils on the bottom layer; however, when the ferrite rod is pushed down so that it goes through the bottom one, there will be a very definite increase, and the flux will flow through these coils.

To make the response much more positive, we will cement a ferrite piece in the shape of one-half of a cup core so that when the ferrite rod touches the center of the cup core much of the flux will flow around the coils.

In operation, the primary will be pulsed periodically and the secondaries looked at. When there is a pulse from each of the six wires, either plus or minus, we know what key is pushed, and we can then read the information.

In order to get six separate windings around each core, we may print some of them directly on the board and have some of them on very thin, flexible laminate which we will then glue onto the surface. We will want most of the winding on the very bottom surface so the flux will not flow until the ferrite rod touches the cup core.

Ken

ecc e-

10/28 - *Al Duval*
Russ Drake

digital

INTEROFFICE MEMORANDUM

DATE: October 3, 1968

SUBJECT: HAMMER DESIGN FOR HIGH-SPEED LINE PRINTER

TO: Joe St. Amour

FROM: Ken Olsen

cc: Pete Kaufmann
Tom Stockebrand
Bob Cesari, Patent Lawyer

When we go back to looking at hammer-driven line printers, I would like to try a hammer driven by piezoelectric crystals. These have the advantage over magnetically-driven actuators in that they do not have to have wires on the outside, but, instead, use an electrostatic field between plates.

Nowadays, piezoelectric ceramics are well-developed and rugged. It would seem to me that we could make a row of these ceramics on tenth-inch centers and give them tremendous pulses of voltage that would put out a significant amount of mechanical energy.

I don't think we will ever get them to move anywhere near the distance it would take to actuate a hammer, but if we have a mass suspended on a spring bearing on the crystals, the ceramic may, during its motion, impart enough of an impulse to drive the mass, thus hitting the print wheel with sufficient energy to print well.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: October 3, 1968

SUBJECT: ENGINEERING WRITING COURSE

TO: Operations Committee
Product Line Managers
Engineering Managers
Marketing Managers
Ron Smart
Roger Handy
Bob Fronk

FROM: Ken Olsen

Clear technical writing is vital to the success of our engineering, programming, marketing, sales, and support work. Consequently, we feel it is worthwhile, from time to time, to provide specialized writing training that is applicable to all groups.

Graydon Thayer has made arrangements with Mr. Harold Mintz of Northeastern University to teach a course in Engineering Writing here at the plant. This will be done in five or six sessions, and classes will be held on Tuesday evenings from 5:30 to 7:30, starting sometime early in November (specific details will be announced later).

We are enthusiastic about this course, and would like to see it well attended. Will you please discuss this with your people and let Graydon know by October 11th who will be attending.

The class will be limited to fifteen attendees, but additional classes will be scheduled, if necessary. So that priority needs are met, Graydon will coordinate the final selection of attendees with the Operations Committee.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: October 4, 1968

SUBJECT: ITEMS FOR DISCUSSION AT OCTOBER 7TH OPERATIONS COMMITTEE

TO: Ted Johnson

FROM: Ken Olsen

During the Operations Committee next Monday, I would like to discuss Dave Knoll's memo on English manufacturing and the need to sell our products to the Ministry.

I would also like to discuss plans for solving our problems in order processing, which are apparently still very serious.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: October 4, 1968

SUBJECT: DICK BAKER OF MIT'S NASA RESEARCH LABORATORY

TO: Nick Mazzaresse

FROM: ✓Ken Olsen

Dick Baker, who I think is one of the most senior engineers at MIT's NASA Research Laboratory, is coming out next Tuesday afternoon, October 8th, at 1:30, to figure out what computer he needs to steer a large electronically-steered antenna in Texas.

I think he wants a PDP-8, with 4K and the disk. He will bring a very competent programmer along, and would like someone technically-competent to discuss the problems with them.

I told him to ask for you (I will be out of town) and you would have someone ready to answer his questions.

Be sure to have someone show them through the plant because he does have influence in the electronics world.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: October 8, 1968

SUBJECT: MEETING WITH AVCO AND SIPPICAN ON OCTOBER 10

TO: Nick Mazzaresse

FROM: ✓ Ken Olsen

I got a call today from Francis Ansalmo of the Sippican Company in Marion, Massachusetts. He would like a joint meeting on Thursday, the 10th, with Avco to negotiate an immediate sale for 24 PDP-8/I's (to Avco) for use in the 24 helicopter jet engine test stands (in Stratford, Connecticut, I believe).

Sippican's interest is in miniaturizing the 8 later on for use in airplanes. They feel that by monitoring the jet engine for a short time, they can predict the life of it.

I told him I would be out of town, but thought you could make the meeting. Ask for Everett Karrels of the Wilmington Avco, at 1:00.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: October 8, 1968

SUBJECT:

TO: Al Hanson

FROM: ✓ Ken Olsen

The back door on the Main Street end of the 4th floor of Building 3 should have a bell-type fire exit lock.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: October 8, 1968

SUBJECT: MAIL SERVICE

TO: Frank Kalwell

FROM: ✓ Ken Olsen

Stan tells me that you have improved the mail service significantly. Now you ought to tell people because they can only remember when it was poor, and, unless you point it out, they won't notice the improvement. (You might put an article in the weekly "News Bulletin.")

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: October 8, 1968

SUBJECT: YOUR MEMO DATED SEPTEMBER 30, "COMMENTS ON BEING "BRITISH" AND
ON THE MINISTRY OF TECHNOLOGY"

TO: Dave Knoll

FROM: ✓ Ken Olsen

Your note was excellent; however, I don't understand your change in Ted Johnson's
graph.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: October 8, 1968

SUBJECT: TRANSITRON ELECTRONIC CORPORATION

TO: Harry Mann

FROM: Ken Olsen

The D & B Report that came out on Transitron dated September 18, 1968, says they are coming out with a calculator or computer. If you see any releases on this, please show them to me.

Should we send someone to their annual meeting, which is on the third Thursday in October?

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: October 9, 1968

SUBJECT: ENGINEERING PROJECTS

TO: Stan Olsen
Nick Mazzaresse
Win Hindle
Pete Kaufmann

FROM: Elsa Carlson

As agreed at the Operations Committee on Monday, a list of your engineering projects (both formal and informal) are to be turned in to Ken on a monthly basis.

Please send me seven copies of your list (Ken said the reports your engineering managers send you are sufficient) on the last Wednesday of every month for discussion at the meeting on the first Monday of the next month.

digital

INTEROFFICE MEMORANDUM

DATE: October 16, 1968

SUBJECT: TINUS OLSEN COMPANY

TO: Dave Denniston

FROM: ✓ Ken Olsen

Here's an idea of a company that should be visited, because they will probably need computers someday.

It is Tinus Olsen (no relation), in Willow Grove, Pennsylvania.

They are one of the largest producers of material-testing machines. I have no contact with them, just happen to see a number of their machines around.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: October 16, 1968

SUBJECT: PANEL AT FJCC

TO: Nick Mazzaresse

FROM: Elsa Carlson

I called Bob Forest, Editor of "Datamation" (and the one who is setting up the panel for the FJCC on December 10th), to suggest the possibility of your sitting in for Ken. He is out of town all this week, so I was unable to get any information.

Apparently, the panel discussion will follow a morning's session of papers (I have asked Roy Gould to get this information for you), and the panel will consist of experts in a) leasing, b) independent peripheral manufacturing, c) software, d) time-sharing, e) large-scale computers, and f) small computers.

From what I could gather, you will be expected to answer any questions that are directed to the panel regarding small computers, and, for instance, Jim Babcock, President of the Alan Babcock Company, will answer questions relating to the time-sharing market.

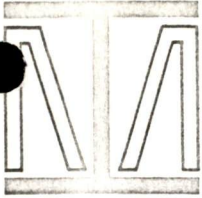
I don't know if this is the rule or not, but they would only agree to having a top-level executive represent the Company (thus ruling out Roger Cady), and were quite insistent at first that it be Ken or no one.

Mr. Forest's telephone number in Pasadena is 213 - 681-8486. If you would like me to call him again next week and get further details for you, I will be glad to. (It might even be good to get something in writing from him - by the looks of the above information I have given you.) I did leave the message for Mr. Forest that Ken would like you to sit in for him, but it is by no means mandatory of you.

Elsa

Elsa

OCT 21 1968



INFORMATION MANAGEMENT INCORPORATED

447 BATTERY STREET

SAN FRANCISCO, CALIFORNIA 94111

415/981-2645

October 18, 1968

Mr. Nick Mazzaresse
Vice President
Small Computer Group
Digital Equipment Corp.
146 Main Street
Maynard, Mass. 01754

Dear Mr. Mazzaresse:

On behalf of the 1968 Fall Joint Computer Conference, I am pleased to confirm your participation in our Security Analyst Session.

The Session is scheduled for Tuesday, December 10, 1968, and will be presented at the San Francisco Hilton Hotel.

The Panel on which you have agreed to participate will include five other panelists and is scheduled from 3:45 - 5:15 p.m. The basic format includes your making a brief five minute presentation and then responding to the questions presented by the audience.

You are, of course, invited and encouraged to spend the entire day. In addition to the Panel Discussion there will be seven formal presentations and a luncheon with industry companions.

Enclosed is a copy of the complete agenda for the Security Analyst Session including the names of all participants and their topics.

Thank you again for your acceptance.

Sincerely,

Howard Bromberg
Chairman, Security Analyst Session

III/lrp
Enc.

FALL JOINT COMPUTER CONFERENCE - SAN FRANCISCO, CALIFORNIA

SECURITY ANALYST SESSION, DECEMBER 10, 1968

AGENDA

<u>Time</u>	<u>Presentation</u>	<u>Speaker</u>
9:00 a.m.	Introduction by Session Chairman	Howard Bromberg Executive Vice President Information Management Inc.
9:15 a.m.	General Overview of Computer Industry	Robert Forest Editor DATAMATION Magazine
9:45 a.m.	Trends in Computer Leasing	Peter Redfield President S S I
10:15 a.m.	Independent Peripheral Manufacturers and Their Impact on the Industry	Richard P. Risenburgh Executive V. P. Mohawk Data Sciences Corp.
10:45 a.m.	COFFEE BREAK	
11:00 a.m.	Implications of Time Sharing	Joseph T. Hootman President Remote Computing Corp.
11:30 a.m.	Potential Market for the Super and Large Computer	Robert M. Price Vice President, Sales Control Data Corp.
12:15 p.m.	L U N C H (with industry companions)	
2:00 p.m.	Potential Market for the Tiny and Small Computer	Richard A. Gorton Mgr., Product & Marketing Auerbach Corp. Planning
2:45 p.m.	Software Industry in the 70's	Norman Friedman President Computing & Software Inc.
3:30 p.m.	COFFEE BREAK	
3:45 p.m.	Panel Discussion and Question and Answer Session	Chairman, Robert Forest DATAMATION Magazine

Panelists:

Howard Bromberg Executive Vice President Information Management Incorporated	Jim Babcock President Allen-Babcock Computing, Inc.
Erwin Tomash President Data Products Corp.	Nick Mazzaresse Vice President Small Computer Group Digital Equipment Corp.
Robert Frank Vice President Computer Leasing Company, Inc.	TO BE ANNOUNCED

digital

INTEROFFICE MEMORANDUM

DATE: October 16, 1968

SUBJECT: DEC'S KV GRAPHIC SYSTEM

TO: Jack Richardson

FROM: Ken Olsen

Have you looked at the KV Graphic System? This is a very exciting display, and, I'm told, better than the ARDS developed by Robert Stotz (of Project MAC?), and manufactured by Computer Display, Inc., in Waltham.

I would like to hear your reaction to this, and what you think the future will be. We already have orders for 14, and have interest in quite a few more.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: October 18, 1968

SUBJECT: PDP-10 ENGINEERING PROJECTS

TO: Bob Savell
cc: Win Hindle
Joe Sutton

FROM: ✓ Ken Olsen

A number of questions came up at this morning's Schedule Review Meeting.

People have developed the impression that all engineering projects in the PDP-10 area have been running late, and there is no sense of urgency. It might be good if you gave a report to the Operations Committee on how things are going so we can see your point of view.

For many months, we have been hearing about the loss of programmer time because of the failure to make the PDP-6 operable. The Operations Committee would like to have an estimate of what it has been costing us per month for the last number of months because of down-time on the PDP-6, and what it would cost to make it run well.

I hear it said that people could go outside for services when they were unhappy with services inside, but they have to take the responsibility for outside contracts. At this meeting, the implication was made that the technical writing was delayed on the TU79 because of the internal technical writing problems. It seems, however, that the TU79 group contracted to have this writing done outside, and there has been some confusion as to who was supervising this contract after it was given to an outside group.

Could you send us a note explaining what happened here? We spent almost half a million dollars on the TU79 and its predecessors, and, in addition, spent many months testing out the TU79. According to the schedule, it looks like we will ship the first production units as soon as they are complete. Do you feel it is wise to ship them without long-term and thorough testing?

Ken

ecc

*hcc - Pete
Stan*

digital

INTEROFFICE MEMORANDUM

DATE: October 22, 1968

SUBJECT: CAMCO

TO: Fred Gould

FROM: ✓ Ken Olsen

cc: Nick Mazzaresse
Stan Olsen
Ted Johnson

I called Bill Seaver at Camco to see how we're doing with them. He said we have probably lost their business, but because of no fault of our own. He said you have done an excellent job, Fred, and he was very impressed with the way you handled the contact.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: October 25, 1968

SUBJECT: PDP-9 DOWN-TIME

TO: John Jones

FROM: *UK* Ken Olsen

cc: Stan Olsen

For many months now, we have been hearing about the loss of programmer time because of the failure to make the PDP-9 operable. The Operations Committee would like to have an estimate of what it has been costing us per month for the last number of months because of down-time on the 9, and what it would cost to make it run well.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE: October 28, 1968

SUBJECT: SCAN DATA CORPORATION

TO: Nick Mazzaresse
Ted Johnson
Jack Shields
Ron Wilson

FROM: ✓ Ken Olsen

cc: Dave Denniston
Roger Cady

I got a very unhappy call from Mr. Alan Frank, President of Scan Data Corporation, Philadelphia, Pennsylvania (Telephone: 277-0500).

He is exceedingly frustrated with the temperature failure of our equipment, and particularly frustrated with our Sales and Field Service people. He said that our equipment failed at 80° Fahrenheit, and that our Field Service people refused to work on it when it was 85°, even though our specifications say 132°.

He said he can get no information from our people as to what is going on, and that he even has to chase our Sales people to place an order with us.

He feels that our Field Service people are largely trainees, and he has no confidence in the word of our Field Service Supervisor.

He said we changed the transistor in the G209 from a plastic transistor to a metal transistor with higher dissipation, but will give him no information on it.

He would like the fix made on all modules in the field so he can assume reliability on the equipment.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE: October 29, 1968

SUBJECT: ITEM FOR NOVEMBER 11TH OPERATIONS COMMITTEE MEETING

TO: Stan Olsen
Nick Mazzaresse
Win Hindle

FROM: Ken Olsen

cc: Harry Mann
Pete Kaufmann
Ted Johnson

I would like to emphasize to the Product Line Managers that their key responsibility is to develop and understand the marketing pitch for their products.

For the November 11th meeting of the Operations Committee, I would like each of the Product Line Managers to spend no more than ten minutes giving their pitch to us.

Please call Elsa and give her the list of your Product Line Managers who will be making a presentation that day.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: October 31, 1968

SUBJECT: M-SERIES MODULES FOR THE PDP-8

TO: Stan Olsen
Nick Mazzaresse

FROM: Ken Olsen

John Jorgensen says that the M-Series positive buss interface modules for the PDP-8 family are slow in coming and that the prices don't look good. Will we hurt here in competing with Hewlett-Packard in interace modules? If so, what are our plans for getting around this?

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: October 31, 1968

SUBJECT: SPARE MODULES IN EUROPE

TO: Stan Olsen
Jack Shields

FROM: ✓Ken Olsen

What are our plans for stocking modules in a depot in Europe so that our customers will have confidence that we have spares and that we also have modules to support our customers?

If we feel we can have this covered well in our present techniques, we should at least convince our own salesmen of this so they can convince their customers.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: October 31, 1968

SUBJECT: INFORMATION TO ANALYSTS AND STOCKHOLDERS

TO: Harry Mann

FROM: ✓ Ken Olsen

Some analysts and stockholders reprimanded me at the Annual Meeting for not sending them our product literature and Corporate news as other companies do.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: October 31, 1968

SUBJECT:

TO: Stan Olsen

FROM: ✓ Ken Olsen

Should we sell the mechanical mechanisms that Tom Stockebrand develops?

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: October 31, 1968

SUBJECT: MONTHLY SALES MANAGERS' REPORTS

TO: Ted Johnson
cc: Regional Sales ManagersFROM: ~~V~~Ken Olsen

It is good to have the monthly Sales Managers' reports coming in again. I have some suggestions that I would like to pass on, however.

I find that the Mid-Atlantic reports are most useful, because they very simply and clearly outline their problems, and I would like to encourage the others to do the same.

Please don't withhold problems from us. Instead, let us know what the problems are, and be specific; don't just put them in general terms, such as "things are still screwed up in Sales Administration." We would rather know exactly what we are doing wrong.

I would also like to know why we lose orders, and what features our competitors have that gave them particular orders.

If you tell us about all the things others have that we don't have, there is the danger that we'll try to do too many things, but if you trust us enough to tell us, we'll try to be disciplined enough not to do too many things.

Ken

ecc

cc: John Long
Dave Denniston
Roger Handy
Gerry Moore
Denny Doyle
Ron Smart
Jean-Claude Peterschmitt

digital

INTEROFFICE MEMORANDUM

DATE: October 31, 1968

SUBJECT: DUPONT

TO: Stan Olsen
John Jones

FROM: ✓ Ken Olsen

In the monthly report from Bill Kiesewetter, he said that Dupont had a very negative reaction to our software, and that they will be going to SEL because SEL understands their product line. What is your answer to this, and what are we going to do to get that kind of business? This might be one area that the PDP-9 group could specialize in.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: November 1, 1968

SUBJECT:

TO: Tom Stockebrand

FROM: ✓ Ken Olsen

cc: Joe St. Amour

We should contact 3M to see if they have paper which might be used for an electronic typewriter, one way or the other.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: November 1, 1968

SUBJECT: COLONIAL SHUTTER COMPANY

TO: Dan Sullivan

FROM: Ken Olsen

The Colonial Shutter Company has an automatic stepping and drilling machine for drilling and milling sides of shutters that might be a fast and cheap way of drilling mounting panels. It follows a steel bar ratchet, and drills two rails at one time.

This is made for Fesdo Woodworking Machines, Port Washington, New York, and comes from West Germany.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: November 1, 1968

SUBJECT: REVIEW OF SALES LITERATURE FOR THE FIELD

TO: Ted Johnson

FROM: ✓ Ken Olsen

Should Pat Greene, as a peripheral job, review all sales literature for the Sales Department to be sure it is suitable for the field?

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: November 7, 1968

SUBJECT:

TO: Bob Lane

FROM: ✓ Ken Olsen

American Research has had contact with a company that sells used computers. They say PDP-8's are the hottest thing on the market. It seems to me they get more for used PDP-8's than we get for an 8/1. You might check with Dorothy Rowe to find out more information about them.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE: November 7, 1968

SUBJECT: COMPUTILITY COMPANY

TO: Nick Mazzaresse
Win Hindle
Perry Harris
Roger Handy

FROM: ✓ Ken Olsen

On Tuesday morning, November 5, I received a telephone call from Mr. Genninger of the Computility Company, a subsidiary of North American Computer and Communications Corporation. They are setting up a time-sharing system across the country, with very extensive plans. He had been with CDC for many years, and has a lot of background in this. He has sold against us, and even analyzed us from an acquisition point of view, while at CDC.

There are three computers which they are considering for the job. These are SDS, CDC, and the PDP-10. We are running first, and when he says this I would guess we are running a good first, because we're the only ones with software. He would probably like a special deal on price, but the big hang-up they have is on delivery. They would like the machines delivered complete in a few weeks; however, they may get by with a PDP-8 and a 680, and get a PDP-10 later on.

He said he heard we're having trouble delivering peripherals, which might be just the Burroughs disk. Perry Harris is their contact, and he said all our contacts have been taken care of very well. He called me to be sure that time-sharing is important to DEC, and I, of course, assured him that this is true. He also wanted to be sure that our future machines will be in line with the PDP-10, but, above all, he wanted me to put pressure on the organization to do what we can to give them good service.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: November 7, 1968

SUBJECT: UNITED GEOPHYSICAL CORPORATION

TO: Nick Mazzaresse
Stan Olsen
Ted Johnson
Jack Shields
Bob O'Hagan

FROM: ✓ Ken Olsen

Mr. Edwards, Vice President of Technical Programs at United Geophysical Corporation (Division of Bendix) in Pasadena, called to tell me about their servicing problems. They have two exploratory ships which depend on PDP-8's for navigation. They have one in North Africa, and have been very pleased with Vince Marshall from our London office who has been doing the servicing; however, they need someone aboard the ship.

Apparently, Marshall gave them a price for a full-time man for this, but they have never been able to find one. They have also talked with Jack Shields, who has not been able to come up with an answer either.

If we're going to be serious about shipboard applications, we're going to have to figure out how to service them. They would be willing to send their own man, but have been told that our two-week course for customers isn't good enough to have someone learn to service the machine. They would like to send him to a more extensive course, but they hear this would take six months.

They are very enthusiastic about the navigation system. They're sending their second ship to New Guinea where they hope to run completely by satellite navigation, which will make a significant difference to them.

If we're going to go into this business at all, we've got to solve this problem. Please let me know how I should answer him. His address is: P. O. Box M, Pasadena, California 91109, and his telephone number is: 213 795-0421.

They need two men immediately to go on their ships until they can train their own. I promised to send him the names and addresses of our people in Australia who they will need to keep in contact with to maintain their machines in New Guinea. (They will be working out of Darwin, Australia.)

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: November 8, 1968

SUBJECT: ROBOT MARKET

TO: Pete Kaufmann

FROM: ✓ Ken Olsen

cc: Stan Olsen
Nick Mazzaresse
Win Hindle

There are many marketing areas which we could do very well in if we put our minds to it. If you would like to try your hand at one of these, I'm sure everyone would be happy to encourage it. I'm reluctant to put any more feels on the list because it might confuse things, but let me throw one out to you anyway -- it's the use of robots. Two companies make robots now, with some mixed success, and it's obvious they need a computer with them.

After people have built a few robots, it should be rather easy to build one that's better, and, with our computers, we ought to be able to walk away with the market. Earlier in the week Elsa sent you a magazine article describing a few of them.

Ken

ecc

November 13, 1968

Marketing Review Committee

Ken Olsen

The Marketing Review Committee is covering a lot of good things, but we want to make sure that it doesn't lose track of its main commission, which is to review marketing plans.

The Operations Committee would like to have a schedule for the next few months, showing which product lines will be reviewed, on what days, and a listing of those markets which are not being reviewed for one reason or another.

cag

November 13, 1968

*sent
11/14/68*

Bob Lane

Ken Olsen

When we made out the budgets for the Traditional Product Line, we didn't have much experience on which to base it. Now that you have a few months experience, it would be good if you could come to the Operations Committee and give us your feelings on the future of this product line at this time.

If you're free, November 25th might be a good time to do this.

cag

November 13, 1968

Need for a ruggedized version of the 8/L

Roger Cady
cc: Nick Mazzaresse

Ken Olsen

sent
11/14/68

I think that we badly need a ruggedized version of the 8/L in our product line. I'm afraid that CCD of Honeywell is going to take a lot of business away with their militarized or ruggedized line of machines for the Coast Guard.

Will you give me a call sometime and give me your ideas on this. I'd like to know what would happen if we slowed down the cycle time to make as broad a tolerance as possible. It would then be possible to eliminate adjustments in memory tuning for long periods of time.

Could we slow down the machines we now have in the field to eliminate much memory tuning? This is the the problem we're now having with computers on shipboard where they can't get service people to stay on the ship.

Bob O'Hagan has ideas on this. In fact, he thinks he could ruggedize them rather easily. Why don't you get his ideas and then put them down on paper?

cag

digital

INTEROFFICE MEMORANDUM

DATE: November 18, 1968

SUBJECT: CHANGES IN REPORTING PROCEDURE FOR SCHEDULE REVIEW MEETINGS

TO: "Engineering Newsletter"

FROM: ✓ Ken Olsen

We have made a change in the Engineering Schedule Review meetings on Friday mornings so that the Vice-Presidents are now alternated with the Engineering Managers in giving the reports. We meant this only to be temporary, but the reaction from Engineers was quite strong. They felt this was not only good experience, but also gave them firsthand contact with management, and they didn't want to lose this opportunity.

To accomplish all of these things, we will carry out the following schedule. One month, the Vice-Presidents will give the reports, the next month, the Engineering Managers, and the third month, the Engineers will give the reports. (Gabe d'Annunzio will personally give a report each month on the status of literature production.)

This means that the reporting will be done by the Vice-Presidents in November, by the Engineering Managers in December, and by the Engineers in January.

We will be on this sequence for a while, and then probably change again.

The Vice-Presidents have been working with Bob Collings to come up with a schedule for the Engineering Managers and Engineers in order to cut down on the time that these reports have been taking.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: November 19, 1968

SUBJECT: STANDARDIZED CIRCUITRY FOR PDP-9/I, PDP-10/I, AND DCM PROJECT

TO: Bob Savell
John Cohen

FROM: Ken Olsen

cc: Tom Stockebrand
Jerry Butler

The PDP-9/I group has decided on their circuitry and techniques for driving busses, and are about ready to freeze their modules. The Engineering Committee would like to review this with the DCM and PDP-10/I groups first to see if we can standardize on the techniques used by the 9/I people or modify the 9/I circuits so they can be used in these other two machines.

Will you ask the appropriate people to join us at the Engineering Committee on November 21st to discuss this question.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: November 19, 1968

SUBJECT: USE OF AN INDUCTION MOTOR TO DRIVE OUR DISKS

TO: Roger Cady

FROM: Ken Olsen

Are there good reasons why we can't use an induction motor to drive our disks? Please give me a call sometime and let me know.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: November 20, 1968

SUBJECT: COURSES ON MARKETING FOR GROUP VICE-PRESIDENTS

TO: Operations Committee

FROM: ✓ Ken Olsen

I feel we need some more book learning within the Operations Committee on how to do marketing. There are three courses that I would like to see the three Group Vice-Presidents attend.

AMA is giving a course on "Developing the Annual Marketing Plan" in Chicago on December 16, 17, and 18, and Advanced Management Research, Inc. is giving a course entitled, "New Directions in Marketing Management," in Chicago on December 4, 5, and 6, and in New York City on January 6, 7, and 8.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: November 20, 1968

SUBJECT: INFORMATION CONTROL SYSTEMS

TO: Nick Mazzaresse
Ron Wilson

FROM: Ken Olsen

I got a call today from Chuck Newman at Information Control Systems, asking if we could deliver a thousand systems in one year. After talking with Pete Kaufmann, I sent him the attached ^{Telegem} ~~TWX~~ as an answer.

Ken

ecc

November 21, 1968

Mr. Charles Newman, Vice President
Information Control Systems
327 S. Fourth Avenue
Ann Arbor, Michigan 48108

Dear Chuck:

We feel that we can, without strain, build up to a rate of 100 systems per month within six months after firm order. We could probably build up to this level even sooner, if it were necessary.

I hope this answers your question. Please call on me if you need any more information.

Kenneth H. Olsen
President
Digital Equipment Corporation

KHO:ecc

digital

INTEROFFICE MEMORANDUM

DATE: November 26, 1968

SUBJECT: USE OF COMPANY VEHICLES

TO: Stan Olsen

FROM: Ken Olsen

Do we now keep a log on the vehicles we run, which I think Frank Kalwell supervises, so that we know who uses them and how many miles they run them?

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: November 26, 1968

SUBJECT: GAMBLING AND SOLICITING ON COMPANY PREMISES

TO: Maynard News Bulletin

FROM: Ken Olsen

We would like to remind everyone about the Company's rules against gambling and soliciting within Company premises, as found in the Employee Handbook.

There are good reasons for these rules. Gambling is now a felony, punishable by three to five years in prison. Now that gambling is so apparently tied into organized crime, it is no longer to be considered lightly. It not only supports organized crime, which is endangering our way of life, but it is exceedingly dangerous to the individuals who get involved.

Gambling will not be tolerated at Digital Equipment Corporation.

Ken

ecc

File but Do Not Mail

News Bulletin

SCPK

everyone should

We would like to remind people the Company's rule against gambling and soliciting within Company premises, as found in the Employee Handbook.

There are good reasons for these rules. Gambling is now a felony, punishable by three to five years in prison. Now that gambling is so apparently tied into organized crime, it is no longer to be considered lightly. It not only supports organized crimes, which is endangering our way of life, but it is exceedingly dangerous to the individuals who get involved.

Gambling will not be tolerated at Digital Equipment Corporation.

Sudbury

Johnny's

12:00

Christmas Party at Wayside Inn

When a certain individual was discharged for illegal activities on Company premises, he said that he arranged for a Christmas party at Wayside Inn on December 24. He paid \$600 for the reservation, and is planning to sell 600 tickets at \$2.00 each.

This party is not only sanctioned by the management of DEC, but it is very much discouraged. Wayside Inn only holds 400 people, and when 600 people arrive, a most dangerous situation can arise.

Chief of Police, Sudbury

Last week we discharged an employee for illegal activities on our Company premises. During interrogation, he told us that he had reserved the Wayside Inn for \$ for a Christmas party on Dec. He printed 700 tickets which he planned to sell for \$200 \$2.00 each.

We thought you should know about this because we understand the Wayside Inn can only hold 400, and if 700 people arrive, a most dangerous situation could develop.

This party is not only not sanctioned by the management of DEC, but is very much discouraged by the management.

Manager of Wayside Inn

FILED DO NOT MAIL

digital

INTEROFFICE MEMORANDUM

DATE: November 26, 1968

SUBJECT:

TO: Henry Crouse

FROM: Ken Olsen

As people approach you to sell computer systems to help automate your paperwork, it might be a good idea for you to keep careful note of specifications. If we plan to go into this business ourselves, we will know what is now offered and what to look for in a system.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE: November 26, 1968

SUBJECT: ITEM FOR OPERATIONS COMMITTEE AGENDA ON DECEMBER 2ND

TO: Win Hindle
Stan Olsen
Nick Mazzaresse
Ted Johnson
cc: Harry Mann
Pete Kaufmann

FROM: Ken Olsen

It is my understanding from Monday's Operations Committee meeting that, for the meeting on December 2, each of the Group Vice-Presidents will prepare a chart of his product lines with the following information for each of the twelve months of Fiscal 1969: 1) bookings, 2) backlog, 3) billings, and 4) inventory

If Ted will chart out what he has gotten and what he expects from the regions during this period, it will be a good cross-check.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: November 27, 1968

SUBJECT: TRADE SHOW STORAGE AREA

TO: Roy Gould

FROM: ~~J~~Ken Olsen

I hear that the Trade Show storage area is not kept in good shape. I suggest that you close off what is necessary to keep this in order, and then establish a good relationship with the Carpenter Shop so that your two activities get done efficiently.

Ken

ecc

digital INTEROFFICE MEMORANDUM

DATE: December 3, 1968

SUBJECT: HEWLETT-PACKARD'S NEW DISK SYSTEM

TO: Nick Mazzaresse
cc: George Rice

FROM: ✓ Ken Olsen

I read in the November 19th issue of CIA Notes that Hewlett-Packard plans to deliver a new disk system with 750K-word capacity at a cost estimate of 10K, and with removable disks. This could be very serious to us. What do you know about it?

Ken

ecc

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INTEROFFICE MEMORANDUM

DATE: December 3, 1968

SUBJECT: POSSIBLE FUTURE DISK

TO: Pierre Schneebeli

FROM: ✓ Ken Olsen

Maybe we should consider making our disk drive compatible with the IBM 2301. At this time, it might be an inexpensive one to make, and we do, of course, have a cross-license agreement with IBM.

I would guess that some of the components might be readily available, also. For example, Applied Magnetics Corporation in Goleta, California, makes a head mechanism which is compatible with the 2311. I should change that to say, they "advertise" that they are making a compatible 2311 head.

One advantage of this is that it has become so much a standard in the industry. The PDP-10 group is now buying units like this. If the price is low enough, it could then be used with the small computers very readily.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: December 3, 1968

SUBJECT: TECHNICAL SESSIONS AT THE FALL JOINT COMPUTER CONFERENCE

TO: Operations Committee

FROM: ✓ Ken Olsen

I suggest that we make plans to be sure that all significant papers and sessions at the Fall Joint Computer Conference are covered and reported on by our engineers. If people are going to be at the Conference for any reason, they can sit in on the sessions and make reports on them.

Monday morning there is a session on "Time-Sharing," which probably should be covered. Also on Monday morning, there is a session on "Reliability, Maintenance and Error Recovery in Third Generation Systems," which we should have a design engineer attend.

"Numerical Control" is covered on Monday morning, also, and should probably be attended by Al Devault.

There are several sessions on "Displays," which Bob Collings can cover if he is out there. Monday afternoon there is one titled, "Frontier Directions in Interactive Graphics." At the same time, there is one on "Terminal Languages," and then late that afternoon there is one on "Data Structures for Computer Graphics." Early Tuesday morning there is a session called, "Systems Techniques for Interactive Graphics," and late Tuesday afternoon there is one titled, "Progress in Displays." Early Wednesday morning there is one titled, "Computer Generated Pictures - Perils, Pleasures, Profits."

Nick should probably have someone go to the early Tuesday morning session titled, "The Mini-Computer," which covers programming and a new approach to computer design.

Someone from engineering should go to the "Large-Scale Integration" session early Tuesday morning.

There are two sessions on "Memory Techniques"; one early Tuesday afternoon and one later in the afternoon, both in the same hall. There is also a session early Wednesday morning on "Bulk Memory Devices," which should be covered.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: December 3, 1968

SUBJECT: NIXDORF'S COMPUTERS

TO: Pete Kaufmann

FROM: Ken Olsen

When you consider business applications for small computers, you should have someone study what Nixdorf's computers in Germany have done. He has apparently trivial computers, but they cover a big part of the German market.

If he can do it with his trivial computers, we surely should be able to do better, even if we have to design a special computer to do it.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: December 6, 1968

SUBJECT: SAN GERMAN PLANT

TO: Pete Kaufmann

FROM: Ken Olsen

cc: Cy Kendrick
Phil Wood
Nase Wilkins
Steve Spaulding
Bill Owens
Jaime Ferra
Linda Brown
Barbara Stebbins

I enjoyed my visit to the plant in San German last Friday. It was, I think, the cleanest and neatest manufacturing facility I have ever seen. The plant looked well laid out, the benches and machinery looked very efficient, and the stock-rooms were exceptionally neat.

I was, of course, particularly pleased with the personnel there. They appeared to be working very hard, and seemed most competent, cheerful, and pleasant.

I would like to congratulate all those who are responsible for the success of this operation!

Ken

ecc

DATE: December 6, 1968

SUBJECT: BUSINESS APPLICATIONS

TO: Dave Knoll
Pete Kaufmann

FROM: ✓ Ken Olsen

We are wide open to having someone in the Company, or outside the Company, propose that they set up a product line or cross-product line marketing group that would get us into specific business applications for our computers. You might be interested in proposing this.

We have at least two customers who are now in this field, and we want to be careful to respect any promises we implied to one of them that we would not compete with them. The other one is Mike Ford, and he pretty much took the idea and programs from our first customer in this area, and we have no obligation not to compete with him.

If we want to go into this, we should, first of all, find out what people who are now in this are offering. The least part of the job is to lay out the specifications, and much of it has been done already.

There are other specific areas which aren't now being covered. One is magazine- and newspaper-addressing. If we bought or designed a high-speed 24/30-column printer, we might be able to develop a system with our new cheap magnetic tape unit that would have very broad applications in the many magazine and newspaper publishers in the country that have large mailing lists. Companies also have very large mailing lists.

This computer might be very simple, but it would probably need at least three mag tape units in order to sort new names on the mailing list.

One of the banks in Boston told me that it would be worthwhile to them to have a small computer just to keep track of the loans their commercial department has open. This would be very low usage and an exceedingly trivial problem, but it would still be worth the price of a small computer. They can't afford, however, to do it with their main computer group, which has a staff of 400 people.

The system we're developing on the floor to keep track of our computers might be developed as a system of general interest.

Some of the systems using display scopes and input devices might be part of some management control information systems.

There is a company in Ann Arbor who is in the letter-writing business, and they are talking of helping purchasing departments. They would look up all the information for a standard

purchase order and do the multiplications for filling out specific purchase orders. I wouldn't want to compete with them either, but there might be areas they're not now covering that we could go into without offending them.

There may be applications for small computers within some of the large organizations, such as insurance companies. They have a tendency to use several quite-large computers. The idea of using small computers probably hasn't settled in yet, and there may be specific jobs we could do; for instance, it might go into all insurance companies.

Ken

mac

Ad to put in "Solar Newsletter"
Copies to V.P.'s
Dec. 4, 1968

DEFINITION OF NOVA

From "Investigating the Earth," Houghton Mifflin Company, Boston:

"Nova means 'new star,' because observers first thought they were watching the birth of a new star when a nova suddenly flared up. Actually, novas are small hot stars that occasionally blow off their outer layers. When this happens the nova may increase in brightness by 50,000 times, stay that way for a few days, then dim slowly back to its original brightness."

From Webster's Third New International Dictionary:

"A star that suddenly increases its light output tremendously (as 10,000 times or more within a few days) and then fades away less rapidly and reaches its former obscurity in a few months or years."

DATE: December 6, 1968

SUBJECT: TRADE SHOW GROUP

TO: Ted Johnson
cc: Ron Smart
Roy Gould

FROM: ✓ Ken Olsen

Most people seem to be happy with the Trade Show Group, but there are two very definite weaknesses in the organization that I see.

It seems that neither Roy nor the Marketing Committee are strongly emphasizing the need for economy. Roy seems to be suffering from getting random inputs by individuals of the Marketing Committee and feeling that he has to go along with the desires of each one. When the FJCC booth was up, he expressed the need to make a number of changes because individuals (not the Marketing Committee as a group) wanted certain changes.

We are now letting our organization get back to the situation we had before we set up product line managers. Everybody has ideas on how to spend money, but there aren't very many people, except for the President, who are really worried about us spending too much money.

I suggest that Roy really stress the need for economy, and, secondly, that the Marketing Committee feel this is one of their main obligations. It seems as though many people have ideas about what new trade shows we should go to so that now the number is exceedingly high, but it seems like there are very few people who feel an obligation to say no. As individuals, they may feel they have fulfilled their moral obligation by worrying about it a little bit, but no one feels strongly enough to show the leadership to turn off anything.

There should be complete cooperation between the Carpenter Shop and the Trade Show Group. If it were worked right, the Carpenter Shop would feel part of the organization and would be helpful in keeping the place clean.

Sometimes I feel that we treat our Carpenter Shop like politicians treat contractors. There has gotten into our society the implication that if you stay aloof from contractors you are honest and economical. The way to be economical is to work with contractors, particularly when the contractor is in the house. I sometimes have the feeling that we don't work close enough with our own Shop in preparing bids and contracts because we want to be able to prove afterwards that we were completely honest when we compared bids in-house and out of the house.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: December 6, 1968

SUBJECT: **FORMAT FOR PLOTTING NEW PRODUCTS**

TO: Stan Olsen
Nick Mazzaresse
Win Hindle

FROM: ✓ Ken Olson

I apologize for not specifying a format for these plots; as a result, they were all made out differently.

Here is a pad that we will standardize on using, and then we will blueprint the pages.

Let's use the same format as my sample so that they all cover the same years and the same space, although we can adjust the vertical scale to suit each product; however, let's only have one vertical scale for all plots.

Let's not use log scale, even though some of the old information may get lost in the dirt.

I drew this sample with a wick pen. We can add color after they have been blueprinted.

Let's have only one product per sheet, and we will not add products to gain continuity.

We will have two plots -- net revenue and net profits. We will start plotting profits at the start of the project so that, by looking at the negative profits, we can see the cost of getting started.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: December 6, 1968

SUBJECT: NEW LINE PRINTER

TO: Joe St. Amour

FROM: ✓ Ken Olsen

cc: Dave Knoll
Pete Kaufmann

As we consider the new way of making a line printer, which we are keeping very secret, we ought to consider making a 24/30-column printer which is exceedingly fast. This might have a great future in the label-printing business. There are now thousands of magazines in the country, and many more specialized publications by companies, for either in-house or out-of-house use. When we get a cheap tape transport, we perhaps ought to go heavily after the magazine-addressing business, but we will need this high-speed printer.

Ken

ecc

digital

INTEROFFICE MEMORANDUM

DATE: December 13, 1968

SUBJECT: NCR

TO: Nick Mazzaresse
Bob Collings

FROM: ✓ Ken Olsen

I spoke today with Charles Keenoy, Vice President and Group Executive of NCR. We made arrangements for Mr. O. B. Gardner, Vice President of Marketing Development, and Mr. W. J. Carroll, Vice President of Product Planning, to visit us next Thursday at 9:00 a.m., to discuss our work on the point-of-sale terminal, and to see a demonstration.

Ken

mac

digital

INTEROFFICE MEMORANDUM

DATE: December 27, 1968

SUBJECT: BROCHURES FOR CIA NOTES

TO: Bob Collings

FROM: Ken Olsen

I noticed the attached literature on MaryAnn's desk, and learned from her that you plan to include it in your CIA notes. Rather than reprint each brochure, a short paragraph on each company should be sufficient if you mention that you have more information for anyone who is interested.

Ken

ecc