



INTEROFFICE MEMORANDUM

DATE April 8, 1966

SUBJECT Product Line Managers Meeting, April 11th

TO Win Hindle
Stan Olsen
Nick Mazzaresse

FROM Ken Olsen

There will be a Product Line Managers meeting next Monday morning at 8:30 in my office. The items to be discussed are:

1. Discussion with Dick Best on Staff Chief Engineer.
2. 5-Year Organization Charts.
3. How Product Line Managers Plan to Solve the Module Repair Problem (this should be in written form prepared by each Product Line Manager prior to the meeting).
4. Small, Short-Term Moves:

I have concluded that we cannot go along with our large relocation plans because everyone has such grand plans that we could not possibly accomplish them. The plans are not only inconsistent with each other, but some of them even seem to be inconsistent within themselves. I feel we have to wait six months or so until we have a professional "spaceman" who will work out the compromises necessary. This man wants to be hated by everyone because, even though they have never laid out space before, they are absolutely sure what they need.

The President has to conserve his negative points and use them cautiously in day-by-day operations. If I worked out this compromise, I would lose all my negative points in one bang and would be useless as a President after that.

Will you bring to this meeting a list of the very small changes we'll have to make in order to make the present situation liveable for the next six months.

Ken

ecc

dec

INTEROFFICE MEMORANDUM

DATE April 8, 1966

SUBJECT Ceramic Module

TO Stan Olsen
Dick Best
Tom Stockebrand
George Wood
Bob Brown

FROM Ken Olsen

At next Tuesday's Components meeting, I would like to consider a completely new approach to the ceramic module. I would like to drop the idea of a machine and work out the quickest way of getting into production. Hitch argued that a machine which did everything was the answer to all production problems, but really a machine which does all operations is a production man's nightmare - except when everything is working absolutely perfectly.

The plan I would like to have us consider on Tuesday would consist of the following parts:

1. Dick Best would figure out how we could make red line circuits with collections of transistors instead of transistors and diodes.
2. Bob Brown would figure out what is involved in making beam lead transistor assemblies. These would be collections of interwire transistors that will be laid down on the ceramic module with tweezers instead of automatically. Because they are such large assemblies, there is very little work involved. Bob could develop the mechanical techniques for building these before the transistor is developed so the design of the module could continue even though the modules did not work electrically.
3. Tom Stockebrand would figure out the fastest way to get a ceramic substrate. This could readily be alumina .025 inch thick and a plain rectangle with no notches. Behind it a thickening strip of thermo plastic could be cemented to give it the thickness to go into the socket, and also the ramp effect which Hitch proposed (and still sounds good). We could then cement a thermo plastic handle on the unit. The thickening strip and the handle might all be one piece. The gold contacts do not have to go all the way to the edge.
4. George Wood would continue working on material for plasma spraying and, hopefully, a technique for spraying down beam lead assemblies.

We might try to order some bead lead diodes from General Transistor immediately so that we can get experience in tying them down. We could lay out some transistor circuits and make up some models and experiment with them in our logic kits right away to see if we like them or not.

If we could develop transistor circuits which have an emitter follower input rather than a diode input, we could then have almost infinite input impedance circuits which would be very easy to use. If we followed a series of paralleled followers with a grounded base amplifier, which, in turn, is followed by a follower, we would have an exceedingly high input and low output amplifier which would do both DC logic and, I think, do the pulse gating if we put an RC filter in the input to one of the followers. This unit, of course, would not invert so we would have to do something different to make flip-flops.

Ken Olsen

ecc

dec**INTEROFFICE
MEMORANDUM**

DATE April 11, 1966

SUBJECT Ceramic Module

TO Tom Stockebrand
cc: Stan Olsen

FROM / Ken Olsen

I suggest that you make a mechanical drawing of the ceramic module and send it to Gerry Moore with a request that he ask different German ceramic manufacturers how they would suggest making this and what their cost would be. During the Hanover Fair the first of May, all of the German manufacturers exhibit and much international buying is done.

I am suggesting that Stan go also and if he does, he would be a good one to take the drawings.

I would suggest making the three models that we're interested in. One is a simple rectangle with no notches and whatever thickness is convenient for them to make in sheet form.

The second is the same shape as the first but exactly the thickness we're interested in and with a tapered rim with a leading edge.

The third one is complete with a ramp, notches, and handle.

It might be a good idea to make an aluminum model of the third one so we can visualize them and so that when we hand it to potential suppliers they can also visualize it. It should be well etched and painted white so that people can visualize it more easily.

Ken

ecc

Ko - Decision
autnonty



INTEROFFICE MEMORANDUM

DATE April 12, 1966

SUBJECT Special Product Line Managers Meeting

TO Product Line Managers
cc: Harry Mann

FROM Ken Olsen

After the Works Committee meeting tomorrow, I would like to have a short Product Line Managers meeting to discuss our approach to engineering projects. We had presentations made last night for new engineering projects, and I would like to spend time developing our thoughts as to how these things should be presented and how we make the decisions. Some of the questions that come to my mind are:

... Does a Product Line Manager have rights to certain engineering projects that will not be reviewed by anyone else in the Company?

... If we decide to go to Data Disc, who takes the responsibility for making this decision? Is it Gordon Bell and Dick Best who visited the company, or is it Andy who read a confidential report and said nothing negative about it? Does the Product Line Manager have the right to insist on making the decision we go to Data Disc, but is safe if Data Disc fails because research has been done within the Company and nothing negative was turned up?

... Do we insist on a different degree of thoroughness and backup for proposals on which the Company is utterly dependent as compared with those which just have the promise of possibly developing a new product?

... Is there also a different degree of thoroughness for those projects which go on for a fixed number of weeks with very vague plans but an obvious point to which success or failure is measured, as compared to those very large jobs which include a large number of people for a very long period of time?

... Is the product line approach to engineering a valid way? I probably started this way because of the lack of confidence in those making engineering proposals. Now I'm wondering if maybe we're adding more people into the loop who are secondhand proposing what was proposed by the engineers who I didn't have confidence in. Maybe we are compounding a situation rather than solving it.

With the product line approach, there is a tendency to make only short-term decisions when, with the centralized engineering, there is someone who will argue that we have to keep research going in specific areas, like tape transports, even though there may not be justified payoff within the next year.

These are some random thoughts and I'm sure you have many more. I would like to go over them on Wednesday.

ecc

Ken

	Total	Maynard Massachusetts	Other U.S.A. Plants	Canada	Scotland	4th Quarter Fiscal Year 1966 Rate
Sales	100 M					36 M
Manufactured	100 M	55 M	27 M	6 M	12 M	36 M
Space (Sq. ft.)	750 K (190 ft. per person 75,000 ft. per M.)	400 K	200 K	50 K	100 K	250 (230 ft. per person 70,000 sq. ft. per M.)
People	4,000 (40 people per M.)	2,200	1,100	220	440	1,100 (33 people per M.)



INTEROFFICE MEMORANDUM

DATE April 15, 1966

SUBJECT Product Line Managers Meeting, April 25

TO Product Line Managers
Harry Mann
Ted Johnson

FROM Ken Olsen

It is my recollection that we invited Ed Schein to join the Product Line Managers meeting on Monday, April 25th. I will not be back from Europe yet, so I would like Harry to be Chairman of the meeting.

Two subjects I would suggest be covered are: 1) Sales Budgets for the Product Lines, and 2) Discussion of Ted's Organization.

I have the fear that I have turned over much too much to Ted Johnson so that he is much overworked, and will be limited in his control and development because of this. I think it would be good if Ted presented his needs and plans for review by the product lines. There may be activities such as telephone and mail which we can remove from Ted. I think we should be sure that Ted's organization will go on even if Ted were sick for some period of time.

Ken

ecc

RECEIVED

1966 APR 14 AM 8:52

DIGITAL EQUIPMENT CORP.
SALES DEPARTMENT

ALSO

MSG 1433 4/14/66
TO JOHN LENG
FROM KEN OLSEN

AIRLINE RESERVATIONS ARE NOW MADE FOR MY TRIP TO AND FROM EUROPE. I PLAN TO LEAVE BOSTON ON THURSDAY, APRIL 14, AT 8:00 PM ON PAN AM FLIGHT 56, ARRIVING IN LONDON ON THE 15TH AT 7:10 AM. I WILL LEAVE PARIS ON MONDAY, APRIL 25, AT 4:15 PM ON TRANS WORLD AIRLINES FLIGHT 891, ARRIVING IN BOSTON AT 6:50 PM

PLS ARRANGE FOR US TO FLY FIRST-CLASS WITHIN EUROPE.

WOULD APPRECIATE YOU SENDING UPDATED SCHEDULE OF EVENTS



INTEROFFICE MEMORANDUM

DATE April 20, 1966

SUBJECT Modernization of the Telephone System

TO Distribution List Below

FROM Ken Olsen

We are setting about to modernize and adapt our telephone system to match the size of the company we have grown to be and to make it possible to grow even larger. The present system we have is just an enlargement of what we had when we were a 10-man company and it is now time that we update our methods of using the telephone service. We have already changed the telephone operator setup and now we have to go about to make sure that all the telephones we have are necessary.

We now have 420 phone sets in the plant and about 65% of these are unrestricted. Our approximate monthly telephone bill is \$18,000 and it is time that the Company redid our phone system.

For the next phase of this change, I would like to have each of the managers prepare a list for me as to what phones are necessary for the operation of his department. We will then match this with the list of phones that are assigned to his department and will question those which are installed but not on the necessary list.

We will cut out all unrestricted phones except for those individuals whose work requires their being continuously on the phone to outside organizations. This will include the purchasing agents, salesmen, and some small number of other jobs within the Company. If your group has any of these type jobs, include it on the list. Now that the telephone operators are separated, there should be no reason why having an unrestricted phone should cause any delays.

Ken

ecc

Distribution:

Stan Olsen

Win Hindle

Nick Mazzaresse

Harry Mann

Ted Johnson

Bob Lassen

Jack Atwood

Loren Prentice

Cy Kendrick

Jack Smith

Dick Richardson

Rod Belden

Henry Crouse

Bob Maxcy

Roger Melanson

Klaus Doering



INTEROFFICE MEMORANDUM

DATE April 28, 1966

SUBJECT Metric System

TO Loren Prentice
Roger Melanson

FROM Ken Olsen

England has committed themselves to go to the Metric System and I am sure that we will also be obligated in a few years. Other companies have worked out a system so that their drawings will be readily adapted to the Metric System. I would like to see you look into this, see what has been done, and decide what program we should do because there is good likelihood that we will be manufacturing in Europe. I would guess that before ten years are up we as a country will have to go to the Metric System because the whole world will be otherwise and we will not be in the position to carry on a commerce with them.

Ken

ecc

RECEIVED

1966 APR 20 PM 4: 27

DIGITAL EQUIPMENT CORP.
SALES DEPARTMENT

ALSO

MSG 1488 4/20/66
TO HILARY CHEEKE
FROM ELSA CARLSON

THANK YOU FOR YOUR TELEX ADVISING THAT MR NASH OF THE PLESSEY
COMPANY PLANS TO VISIT KEN OLSEN AND WIN HINDLE ON APRIL 27.
SINCE IT WAS A HOLIDAY HERE MONDAY AND TUESDAY, I DID NOT
RECEIVE YOUR MESSAGE UNTIL THIS MORNING SO APOLOGIZE FOR
ANY POSSIBLE INCONVENIENCE THE DELAY MAY HAVE CAUSED YOU.
THE 27TH IS SATISFACTORY WITH US AND WE APPRECIATE YOUR
TAKING CARE OF DETAILS FROM YOUR END



INTEROFFICE MEMORANDUM

DATE April 28, 1966

SUBJECT

TO Mike Ford
Nick Mazzaresse

FROM Ken Olsen

I was very conscientious during my trip not to make any decisions or make any policy commitments, particularly to Bernard Haus, who tries so hard to get me to make decisions for him. However, I did break this rule one time and told the people at AEG in Frankfurt that the price of the PDP-8 additional memories are definitely going to be lowered significantly. They just can't afford to order from us unless this is going to be true and I felt I was safe in promising this. I would also be too embarrassed to admit we couldn't make memories as inexpensively as others.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE April 28, 1966

SUBJECT Quality Control of Product Lines

TO Stan Olsen
Win Hindle
Nick Mazzaresse
John Jones
Mike Ford

FROM Ken Olsen

I have been shocked at the quality of the equipment we have shipped to Europe. If we had any competition there at all, they would have nothing to do with us.

At CIR, out of a group of 250 modules, 3 never worked, 4 failed right away, and 3 more failed during a 50-hour test. We have to figure out a quality control procedure to catch these. Maybe we have to burn them in, maybe we have to hammer them during the test operation, maybe we have to put power on and hammer them, and then test them, but this does lend itself to a statistical quality control procedure which I would rather have us do than our customers.

Not only has the quality control of our computers been very poor, at least in specific instances, but the quality control on the papers to go with the orders has been horrid. The wrong machine and the right papers, or the right papers and the wrong machine go to customers. I'm embarrassed to talk to some of our customers because, not only do they have bad experience in what they receive, but they wandered through our plant and talked to people who admit they don't know what they're doing.

CIR has even received modules with the contacts still shorted together and it's hard to see how they ever did work.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE April 28, 1966

SUBJECT LINC-8 Cabinet

TO Mort Ruderman
Win Hindle

FROM Ken Olsen

I was pleased at the enthusiasm of the people for the LINC-8 at Elsinore. As I sat and looked at the cabinet, however, I thought it looked a little homemade with all the bare screws on the empty panels. Maybe if we polished the front edge on the angle at the very top so that it showed bare aluminum, it might get away from the homemade impression which I got while looking at it.

Ken

ecc



INTEROFFICE
MEMORANDUM

DATE April 28, 1966

SUBJECT Heidelberg Machine

TO Nick Mazzaresse

FROM Ken Olsen

I would like to see you get a report written on the Heidelberg machine. I think we ought to find out just what went wrong there. It was late, it arrived in terrible condition with burnt lifted copper on the modules, and it took three weeks to be installed. This group is close to our other physics users in Europe and everyone knows everyone else so I think we ought to find out what happened so that we don't let it happen again.

Ken

ecc

INTEROFFICE
MEMORANDUM

DATE April 28, 1966

SUBJECT Side Panels of the Logic Lab

TO Stan Olsen

FROM Ken Olsen

People are very unhappy about the side panels of the logic lab because of the very high price. It really bothers people so we have to do something about it quickly, even if we have to increase the price of something else to cover it.

We also should be going on our cheaper table because that also bothers people, even though that is a truly legitimate price.

Ken

ecc



INTEROFFICE
MEMORANDUM

DATE April 28, 1966

SUBJECT Running PDP-8 Programs on the PDP-9

TO John Jones
Nick Mazzaresse

FROM Ken Olsen

People in Europe asked me if we can't draw up a system so that we can run PDP-8 programs on the PDP-9. I thought we had done something like this and, if we have, or if we can do it easily, they feel it would be very important in selling.

Ken

ecc



INTEROFFICE
MEMORANDUM

DATE April 28, 1966

SUBJECT Labels for the PDP-8 Power Supply

TO Mike Ford

FROM Ken Olsen

I would suggest that we silk screen the labels on the back of the PDP-8 power supply and not use decals because it looks rather cheap the way it is now.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE April 28, 1966

SUBJECT

TO Product Line Managers
Ted Johnson

FROM Ken Olsen

We have become customer-oriented. We sent a machine to DESY, Hamburg and it was broken. I got the impression that we are more interested in collecting the insurance than taking care of the customer. In a case like that, IBM would have a new machine on the plane immediately and worry about the insurance afterward.

Ken

ecc



INTEROFFICE
MEMORANDUM

DATE April 28, 1966

SUBJECT

TO Stan Olsen

FROM Ken Olsen

Will you find out what Tom Watson said about the mistake they made in hybrid circuits. This is going all through Europe and people think we are making the same mistake and we don't even know what he said.

Ken

ecc



INTEROFFICE
MEMORANDUM

DATE April 28, 1966

SUBJECT Special Glass Panel for the PDP-8

TO Nick Mazzaresse
John Jones
Mike Ford

FROM Ken Olsen

I think it might be worthwhile to have a special glass panel for the front of the PDP-8 with the name of the local company on it, and maybe some in different colors. This would help in England, particularly when we start manufacturing, but it might also help in Canada, Germany, and France. We might even translate some of the labels into French or German.

For some reason or another, we don't make them ourselves in glass any more but I feel it should be relatively easy for us to make different front panels when we make them in our own shop.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE April 28, 1966

SUBJECT Large Cabinet for the PDP-8

TO Mike Ford
Nick Mazzaresse

FROM Ken Olsen

In talking with customers who are using our equipment in six foot racks, I am much more confident that it will be a good idea to offer the PDP-8 in the PDP-9 cabinet. People like AGA could get by with one cabinet when now they have two. The present six foot cabinet allows you practically no extra room for equipment and would not allow the addition of our new paper tape reader and punch. When we announce the PDP-9, PDP-10, it might also be good to announce the "new PDP-8" which might be priced the same but have the new reader/punch combination and the new cabinet.

People liked the literature we have on the PDP-8 and think that it explains everything they need very well.

Ken

ecc



INTEROFFICE
MEMORANDUM

DATE April 28, 1966

SUBJECT

TO Arthur Hall

FROM Ken Olsen

As expert on connectors for different voltages, do you think we have the right connector in the back of our PDP-8 for European voltages which vary between 117 and 240 volts, 50 cycles?

Ken

ecc

I telephoned this message to Arthur because of the short time left that he will be with us. His opinion was "no," but advised that I give the memo to Ed de Castro and ask him to look into it for us.

Elsa



INTEROFFICE MEMORANDUM

DATE April 28, 1966

SUBJECT Teletype and Telex Messages

TO Ted Johnson

FROM Ken Olsen

Will you arrange to have a weekly report made (of which I would like to have a copy) of all unanswered Teletypes and Telexes. We have made significant improvements in this but I still sense much concern for lack of answers.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE April 28, 1966

SUBJECT CIR

TO Stan Olsen
Ted Johnson

FROM Ken Olsen

CIR has been quite unhappy with the failure of our modules and they would like to keep a stock of modules which they will pay only for those which they use. Will you find out from Bernard exactly what the story is on this and give them an immediate answer. Some of their power supplies were missing tab connectors and, hopefully, we've sent them on to them. They had several power supplies with capacitors in backwards, which is a horrid situation.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE April 28, 1966

SUBJECT Shipments to Europe

TO Ted Johnson

FROM Ken Olsen

There have been so many mistakes in shipments and orders going to Europe that I think we should institute a little more red tape to control this.

We, as a Company, have suffered in the past from people being afraid to criticize individuals and so they blame it on "the Company." I want people to criticize those who are making mistakes so that they can get corrected. I am afraid that people make mistakes and never hear about them.

For awhile, I would like to have a report made out on every shipment going to Europe with the following questions: 1) when was the order placed? 2) when was delivery promised? 3) when was the actual delivery? 4) what was the condition of the equipment? 5) was the customer happy? 6) were the papers filled out correctly?

If there is a negative answer to any of these, I would like to have a reason written out - hopefully by the person within DEC who has made the mistake.

I know that in times past there have been mistakes made by the customers, by our field offices, by Reading, by the airlines, by our order receiving group, by the product lines, and when each one has made a mistake the results have been horrid. Yet no one has felt confident enough to criticize. Now, however, I would like to have it put down on paper so that people will take the mistakes more seriously. Some of the mistakes we have made are just unbelievable.

In addition, I would like to have you put in the Sales Newsletter, over my name, a request to all our sales people to send a report on all mistakes made in shipments. Then I would like to receive a copy of this with an explanation as to why the mistakes happened.

You know that I am not one to hang people who make mistakes, and probably have been the cause of this attitude of not reprimanding people because I am usually so lenient. I do, however, want to make sure that people realize their mistakes and I also want to make sure that these reports are made out very conscientiously.

Ken

ecc



INTEROFFICE
MEMORANDUM

DATE April 28, 1966

SUBJECT

TO Gerry Moore

FROM Ken Olsen

I like the looks of the man we interviewed from DESY, Hamburg, and would suggest that you go after him if he continues to look good to you.

I was interested to hear about the comparison which SDS has written up between the PDP-8 and the 92. Please follow through by getting this comparison and having it translated. We don't have to get involved in their way of doing business (by saying bad things about them) but it could be rather damaging to them if we distributed this among our salesmen to show to our contacts.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE April 28, 1966

SUBJECT Decal of the Loader Program for the PDP-8

TO Mike Ford
Nick Mazzaresse

FROM Ken Olsen

I found that all through Europe people have pasted the loader program on the front of the PDP-8. If we made up a decal, this might be a useful thing to give out to our sales people.

Ken

ecc



INTEROFFICE
MEMORANDUM

DATE April 28, 1966

SUBJECT Financial Situation at Equipement Digital, Paris

TO Harry Mann

FROM Ken Olsen

I was not involved in setting up the Paris operation, but left it completely with Andy. Now I am quite confused with the situation.

As I understand it, Bernard has invested \$10,000 and Arnaud de Vitry has invested \$10,000. Arnaud is now about to invest \$30,000 to pay off the last two debts and to finance accounts receivable for the French Government. It would seem to me that we should be able to finance our own operation there.

I would like to discuss the foreign operations at the Works Committee and want you to fill us in on the French operation.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE April 28, 1966

SUBJECT Policy for PEPR and PEPR-Like Machines

TO Product Line Managers

FROM Ken Olsen

We need a policy on PEPR and PEPR-like machines. We ought to write this on paper and get it out to our salesmen right away. Maybe we should write a report on what we have accomplished and what we are willing to do.

This question comes up so often, and we are the strongest company in this area, so we should make a decision. Maybe we should schedule a report on this for the Works Committee in the next two or three weeks.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE April 28, 1966

SUBJECT Notes on CERN

TO Product Line Managers
Dick Best

FROM Ken Olsen

I was only at CERN for a short time, but if I had known about the interest there I would have scheduled one or two days. I would suggest that we send Dick Best over there to spend two or three days explaining to the people how we do things, what they might be doing wrong, and, in general, to make points with them. If Dick could go soon, there is still good skiing in Switzerland.

I would also suggest that Stan send a box of catalogs over immediately. I think they are tax-free at CERN.

For some reason or other, catalogs cost us \$.50 to \$1.00 tax in France.

People at CERN liked the original System Module catalog and didn't like our new one. If we have extra old ones, you ought to send them on to CERN.

They are going to make a decision in the next month or two as to whether they go to integrated circuits or DEC modules. I think it would be well worthwhile sending Dick, or even myself back, to make sure they decide the right way.

They are worried about committing themselves to DEC logic because other logic is positive. If we could have it already converted, we could push just how easy it is to convert it.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE April 28, 1966

SUBJECT Interface to the 360

TO Nick Mazzaresse
Mike Ford
John Jones

FROM Ken Olsen

Everywhere I went in Europe I was asked about an interface to the 360. This should be very easy because a number of customers are doing it. I think we have to immediately offer this or tell our salesmen that we are not, because this question comes up so often.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE April 28, 1966

SUBJECT

TO Stan Olsen

FROM Ken Olsen

At CIR, they made a module extension with patch cords internal to it so that they can interchange the connections to run different modules in different ways on their operating system. They think this is a great idea and should be part of our product line.

Ken

ecc

INTEROFFICE
MEMORANDUM

SUBJECT

DATE April 28, 1966

TO Product Line Managers

FROM Ken Olsen

Bernard Haus has also heard that Tom Watson claimed they made a mistake in going to hybrid circuits, so I asked him to find out from the French IBM what troubles they had and what the source of the story was. He called a friend at IBM and he said that they have no problems at all, just that their needs are beyond their capability. He claimed that they are making six million hybrid circuits in France per year. I don't know whether these are modules or hybrid strates.

He said that they are making 360-40 and 360-50 computers in France.

He also mentioned that they are starting work on monolithics at this time.

The 1800 is all strates but they are different from the regular 360 strates.

Ken

ecc



INTERFACE
MEMORANDUM

SUBJECT Lab Modules

TO Stan Olsen

DATE April 28, 1966

FROM Ken Olsen

On the way to the Morley Airport, Bernard stopped off at one of the technical colleges outside Paris to see one of our lab module setups. When you go to Europe, it might be worthwhile for you to visit a number of these lab module users to find out their ideas.

Their biggest complaint is the price of our side panels. We have to do something about this immediately. These people have built a rather elaborate box to put them around in order to save the \$40. They, therefore, could not pull the plug out the back and want a switch on the front panel.

I don't think our lab book is easy to read. If you could bribe or hire some professor to rewrite it in a simple way, I think it would be worthwhile.

Ken

ecc

INTEROFFICE
MEMORANDUM

DATE April 28, 1966

SUBJECT Feedback Loops

TO Product Line Managers
Ted Johnson
Harry Mann

FROM Ken Olsen

I am afraid we allowed our communication feedback form to go on an incomplete cycle.

Apparently, Nick wanted every customer to write a letter to Maynard saying that they would be willing to accept partial shipments. This is a terribly embarrassing thing for a salesman to ask for and they, of course, wouldn't do it; particularly to those customers where units were already overdue. The idea of going to them and asking them to write a letter to Maynard, bypassing the local office, is just impossible. However, I suspect that if Nick did request this, he never received any of the negative feedback from the field. I feel that a command like this can get distorted going through half a dozen people.

In Europe, and I am afraid at home also, everybody is too content to allow someone to make a mistake higher up and then blame all the problems on that man.

Ken

ecc

100-sales to Russia
+ Israel

INTER-OFFICE
MEMORANDUM

DATE April 28, 1966

SUBJECT Notes on Other Markets

TO Product Line Managers

FROM Ken Olsen

We have to immediately find out what our country's policy is going to be in the next few years on doing business with Russia and with other Iron Curtain countries. If it is going to be positive, we should take an active role in it now. There is going to be a conference in Moscow in September which I was thinking I might go to and use as a vehicle to find out just what our attitude should be.

Bernard Haus uses every opportunity to encourage expansion in the French office. He claims that General Electric bought Bull in order to have access to the Iron Curtain countries. Bernard also says that a friend of his at IBM had told him that 30% of IBM's international business is in Africa, most of which is French speaking. International business is 40% of IBM's total business.

Bernard also says that IBM is selling hundreds of 1401's to Russia.

John Lebel just came back from Israel and said that they will buy some large number of millions of dollars worth of computers during the next five years. They would like to start a manufacturing facility there and sell to Europe. They would also like to join the European space organization. He suggested that we hire a representative immediately and consider their markets seriously. He will be in Boston in two weeks where he will be Chairman of the International Session of the National Telemetering Conference. At that time I will visit with him and ask questions on this.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE April 28, 1966

SUBJECT Compatible Line of Computers

TO Nick Mazzaresse
Mike Ford
John Jones

FROM Ken Olsen

People in several places in Europe asked me if we can make a program that would allow the running of PDP-8 programs on the 7 or 9. They feel this would be very important in selling our machines.

If we had this, we could then advertise that we now have in production a complete operating compatible line. This would include the 10, the 11 (the disc computer), the 8 and the 9. I believe that this one program is the only missing link to having a complete, upward compatible line of computers.

Ken

ecc



INTEROFFICE
MEMORANDUM

SUBJECT LINC-8

DATE April 29, 1966

TO Win Hindle
Mort Ruderman

FROM Ken Olsen

Bernard Haus asked me if we can sell LINC-8's with standard DECTape on them so that they can be interchanged with other computers.

This question probably has risen from other people so you might answer it in the Sales Newsletter.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE April 28, 1966

SUBJECT Notes on April, 1966 Trip to Europe

TO Product Line Managers
Harry Mann
Ted Johnson
John Leng

FROM Ken Olsen

Itinerary

Thursday, April 14, we flew to London, arriving Friday morning. We spent Friday and Saturday visiting with John Leng and the people from the Reading office.

Sunday we flew on to Geneva.

Monday morning we visited CERN with Bernard Haus. In the afternoon we drove to CIR and then on to Zurich (at 100 miles an hour through the Switzerland hills in order to get to the airplane six minutes before our flight time) where we flew to Munich.

Tuesday morning we visited the Munich office, which has the best furniture in the Corporation. In the early afternoon we visited the Max Planck Institute and then drove to Stuttgart for the Magnetic Conference.

Wednesday morning we visited the Conference again, then flew on to Frankfurt and saw AEG, and then drove to Cologne.

Thursday we visited the Cologne office, saw our banker, and interviewed an engineer from DESY, Hamburg who would be good to hire. We then flew to Copenhagen and drove to Elsinore for the Medical Conference.

Friday we had lunch in Elsinore with the Chairman of the Conference, visited with AGA, then drove back to Copenhagen and flew to Paris.

Saturday I visited Arnaud de Vitry and the EED office.

Sunday we had lunch with Arnaud de Vitry's family at John Lebel's summer home (indeed, a gracious way to spend a Sunday afternoon).

Monday morning I dictated these notes in my hotel room on the machine from the Paris office. We then visited the Paris office and had lunch with Bernard. Then we flew home to Boston.

Summary of Observations

John Leng and Gerry Moore are very enthusiastic and can see a big future in their countries. Bernard Haus feels that we have to expand dramatically in Paris in order to be successful in France.

Everyone believes that we should start manufacturing in Europe as soon as possible. Arnaud de Vitry definitely agrees with this conclusion.

We definitely have to start a bonded warehouse immediately to help our module sales and to assure our computer customers that we do have spare parts readily available. John Leng thinks it should be at the London airport because it is the largest airport in the world, Bernard feels that it should be at the Paris airport because Paris has the largest airport in the world, and Gerry Moore thinks it should be in Cologne . I think Gerry and John should make proposals and we will decide between them.

There has been a significant improvement in communications, but we still have to make a significant amount of improvements. If we want our native employees to have the American attitude on business, we have to show the American attitude from Maynard. They are all too happy to blame things on red tape and unavoidable delays.

The mistakes that we are still making in our shipments are atrocious. I think Nick, Mike Ford, and John Jones should visit Europe and find reasons for taking long automobile trips so that there is time for all the complaints and their problems to come out.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE April 29, 1966

SUBJECT Sales in Europe

TO Product Line Managers
Ted Johnson

FROM Ken Olson

There are several questions that we have to answer immediately for Europe and use it as a sales pitch.

1. Where will modules and computer spare parts be stocked in Europe?
2. Where will modules and computer parts be repaired in Europe?

When we find the answers to these questions, we should publicize them loudly and clearly because they are very important to us as far as sales are concerned.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE April 29, 1966

SUBJECT Small Computer Strategy

TO Product Line Managers
cc: J. Jones
M. Ford

FROM Kenneth H. Olsen

The decision as to whether we make a large computer or not is dependent upon the strategy we have for small computers. If we strain our resources in order to obtain a fraction of the market necessary to insure a stable future, then we cannot make the large computer. If we feel we can sell a little more than we are now making, then I feel we should make a large computer.

In order to make our decision we are going to need some estimates from the Small Computer Group. We are going to need, in effect, a Chart Plotting Volume and Percentage of Markets vs. Investments. From this, we can see what is the most worthwhile investment in small computers. I see CDC as our most significant competitor. Their tremendous success in the 1700 is going to help them work a more modern and a more complete line of small computers. I believe they can make a new small computer faster than we can. They plan to make one thousand 1700's in two years. One of the questions that can be answered regarding our statement of strategy is - "are we out to run the market or are we going to pick up what IBM and CDC leave behind?"

KHO:ncs



**INTEROFFICE
MEMORANDUM**

DATE April 29, 1966

SUBJECT

TO Sales Newsletter

FROM / Ken Olsen

I received some negative reactions to our latest ads during my trip to Europe. The feeling was that these were a little too lowbrow for the European audience.

I would like to hear from more people in the field as to what their own reaction is, and that of their customers, to our ads. Please address them to Elsa Carlson and I will enter into the Sales Newsletter the results of this informal poll.

ecc

dec**INTEROFFICE
MEMORANDUM**

DATE April 29, 1966

SUBJECT

TO Sales Newsletter

FROM Ken Olsen

Tom Watson of IBM apparently made a public comment that they had made a mistake in going to hybrid circuits. I heard this in a number of places while in Europe but haven't yet found the source of the formal statement. If anyone knows what this is, please let me know because it is very important to us. People have concluded from this that all hybrid circuits are wrong, which is, of course, not true. We should find out exactly what the statement was so that we can know how to answer it.



INTEROFFICE MEMORANDUM

DATE May 3, 1966

SUBJECT Module Catalog

TO Stan Olsen
Frank Kalwell

FROM Ken Olsen

When I was at CERN they very definitely let me know that they like the old System Module catalog better than the new one because of the way it was organized. As I mentioned in a memo to Stan previously, it would be good if we sent a box of the old System Module catalogs to them. I think we have a lot of them in the literature stockroom. Be sure that they don't throw any of these old catalogs away when they clean out the stockroom.

Ken

ecc

dec**INTEROFFICE
MEMORANDUM**

DATE May 3, 1966

SUBJECT

TO John Leng
cc: Ted JohnsonFROM Ken Olsen

I am fascinated by your idea to do a small amount of manufacturing at the new plant in Reading. Please put down a few ideas on paper so that we can have something to consider. I think that once we develop the technique for doing this we can then do the same later on in one of the common market countries. I think the big problem is getting started proving how it can be done.

You might also ask Bernard Haus and Gerry Moore to put some notes down as to how they would start if we did it in their country. It might do Bernard good to be forced to put some ideas down on paper because he wants badly to produce in France but I don't think he has any idea what is involved.

During my trip, I tried very hard to avoid making any commitments or decisions. If Gerry or Bernard feel that I did make commitments, please, from your point of view, assume that I did not and go ahead and control it as you normally would.

I sent a note to Gerry saying that I thought the man we interviewed from DESY, Hamburg looked good. I in no way meant to imply that he should hire him on my say so, independent of you, Ted Johnson and the budget, but was passing on the comment as just one more helpful interviewer.

Ken

ecc



**INTEROFFICE
MEMORANDUM**

DATE May 3, 1966

SUBJECT Selling Behind the Iron Curtain

TO Harry Mann
Ted Johnson

FROM Ken Olsen

We somehow have to develop a feeling as to what the U. S. attitudes are going to be in selling behind the Iron Curtain. AMA is having a session in New York from June 6 - 8 on East - West trade. It might be worth sending someone there to find out what will be going on.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE May 3, 1966

SUBJECT Suggestions for Moves

TO Loren Prentice
cc: Harry Mann
Nick Mazzaresse
Jack Smith

FROM Ken Olsen

Let me know what you think of this idea for moves. I have been away from the details long enough that I probably have forgotten a few but right now this looks good to me.

Let's move Production Line B over to Cy Kendrick's area, like he has suggested, and move his stockroom.

We could move the Machine Shop down to the bottom floor and move all of Win Hindle's activities, with or without Digital Test. This will leave the Small Computer Group a lot of space on the top floor of Building 5.

Then let's move the gold plating, board preparation, and drilling down to the bottom floor of Building 11, which would leave space for PDP-9 production.

The floor where Production Line B is presently would be a good mechanical assembly area for in/out equipment.

When we need the space, we could move the Burroughs computer to the same area where the PDP-6 is in Building 12 and have most of the personnel for Accounting on the second floor of Building 12. New England sales and Central sales activities could be on the second floor of Building 11.

This, I think, gives us quite a bit of expansion space for each of our activities.

Ken

ecc



INTEROFFICE
MEMORANDUM

DATE May 4, 1966

SUBJECT

TO John Leng

FROM Ken Olsen

Will you send me a proposal as to what socket we should have in the back of the PDP-8 for use in Europe where we normally have 220 volts, 50 cycle. The plug we now use is rated for 250 volts but it is the standard socket we use in this country for 110 volts.

Ken

ecc

dec

INTEROFFICE
MEMORANDUM

DATE May 4, 1966

SUBJECT

TO Pat Greene

FROM Ken Olsen

When you make new devices like the current driver, be sure that you don't get any more drafting than what is necessary. These are relatively small-run devices and if you can make them with models without the elaborate drawings we would normally make, it would help your budget significantly.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE May 4, 1966

SUBJECT Selling the LINC-8

TO Win Hindle
Mort Ruderman

FROM Ken Olsen

Here are a couple ideas that might help in selling the LINC-8.

The wonderful software available with the LINC-8 is hard to get across in text, and often a little hard to get across in demonstration unless you really catch people's interest for a long period of time. This would be an ideal application for a movie. With a movie, people sit down and are quiet for the length of the film, and I think we should seriously consider getting the software message across in this way.

Commercially made films are very expensive, but if we found the right man within the plant he could do this film all by himself and do a good job at very little cost. We could hook up a movie camera directly to an oscilloscope and collect all the oscilloscope information in one continuous run. We could then get the other shots of the LINC-8, collect a few other laboratory shots from around the country, piece them together, add voice, and come up with a short, interesting film that would get the software message across.

The next idea is a carnival type gimmick which is not new but which I think really would catch the imagination of people. If we hooked up wires to someone's head, connect this to the LINC-8, and the LINC-8 to some device like lamp bulbs, bells, or something else, and then have the man actuate these devices by what he thinks, this would be a great stunt. It could even be part of the movie. If we played this right, it could make the magazines and newspapers.

Another variation of this would be to have several lamp bulbs flashing at different frequencies all close to the alpha rhythm of the brain. The computer would tell which one of the bulbs the man was looking at because of the alpha rhythm in his brain.

Ken

ecc



INTEROFFICE
MEMORANDUM

DATE May 5, 1966

SUBJECT

TO Harry Mann

FROM Ken Olsen

I think we should work out a new check signing procedure for the May 24th Board of Directors meeting to take into account the latest personnel changes.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE May 5, 1966

SUBJECT

TO Mike Ford
Nick Mazzaresse

FROM Ken Olsen

I heard that Teradyne is unhappy with the PDP-8. Their service has been good after the first machine and the reliability of the equipment is good, but they feel that the price is too high. They can get a 3 C's machine for \$28,000 with a 40% discount, which comes out to be about the same price of our \$18,000 with a 5% discount. The machine is more powerful but they don't need it. This gives them the advantage of being able to quote the retail price and still have a significant amount of money in there for their own cost.

If we come out with a "new 8" we might sharpen a pencil and figure that we can allow more than a 5% discount for OEM, saying that it is about 40% of our business. We might also spend time with them convincing them that they can sell in other ways so that they don't have to sell at our retail price.

I also heard that Applied Dynamics feels we are not at all cooperative. They are thinking seriously of dropping us and going to SDS or Control Data. I would like to know if this is in the area of joint bidding or in those areas in which we really feel we are very cooperative. It would be worthwhile asking this question. We cannot be too cooperative in joint ventures because we have to sell to everybody.

It might be worthwhile to visit Mr. Wood and Mr. Gilbert at Applied Dynamics to show interest in them. They would also like to explore an informal relationship in which we share the programming cost on a new hybrid system they feel is very hot.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE May 5, 1966

SUBJECT Agenda for Evening Meeting, May 9

TO Members of the Works Committee

FROM Ken Olsen

At next Monday night's Works Committee meeting, I would like to discuss our plans and problems for working out inter-company communications. The Product Line Managers and Ted Johnson have been working on a system to solve our communications problems, and I now think it would be good to make a presentation to the whole Committee to make sure there are no loopholes or inconsistencies in the plans which are being worked out.

Ken

ecc

dec**INTEROFFICE
MEMORANDUM**

DATE May 5, 1966

SUBJECT Power Supply for LINC-8

TO Mort Ruderman
Win Hindle
cc: George Gerelds
Mike FordFROM Ken Olsen

I think it would be worthwhile to consider making a special power supply for the LINC-8. It might get into large scale production later on because I suspect we'll end up selling a large number of 8's in the LINC-8 cabinet.

We have a large panel space under the console which could be one large plate of aluminum and we could take our present PDP-8 power supply and spread it all out on one plane. We might even use the same harness that we use in the complicated box. This should be less expensive because it would be a lot easier to make, with a lot less complicated sheet metal, and it should make servicing a lot easier.

If you like this idea, you might have George Gerelds make up a model and then you can decide on the wisdom of this.

Ken

ecc



**INTEROFFICE
MEMORANDUM**

SUBJECT Summer Student from Sweden

TO Ted Johnson
Bob Lassen

DATE May 9, 1966

FROM / Ken Olsen

I got a letter from Telare last week, a copy of which is enclosed, asking if we could hire a summer student from Chalmers University of Technology, Goteborg, Sweden. Please let me know right away what you think of this, whether or not you think we can absorb one, and if you think it is wise.

Ken

ecc

KO- Computer
Advertising



INTEROFFICE MEMORANDUM

DATE May 9, 1966

SUBJECT Computer Advertising

TO Mike Ford
cc: Mort Ruderman
Nick Mazzaresse
Ted Johnson
Jack Atwood

FROM Ken Olsen

I am getting worried about our new lowbrow computer ads. These seem to work out well for modules (for which it is hard to figure out anything to say) but we really have a message to get across for computers and I'm not sure our poetry is getting it across. I have asked for an informal poll from those who receive our Sales Newsletter and will, of course, pass the results on to you, but you might want to start sampling opinions before that. If the reaction is as negative as I am starting to suspect, you may want to change direction even sooner.

I think we need some technical gimmick to really attract people's attention. We put a real splash on for the PDP-8 and really made hay. We have got to do something splashy again. I think SDS is really making hay with their Sigma-7. Even though it's a long way off and they are promising things they'll never deliver, the technical significance of this appears to be great and it gives them a lot of good publicity. Much of what they are advertising has already been accomplished in the PDP-6, but it still makes them look like a forward looking outfit.

If we can only get the PDP-7 and 9 to run PDP-8 programs, we could have a great technical pitch on the truly compatible line of computers. We could push this as being the greatest thing that ever happened to mankind. We would have a disc computer, a serial core computer, a fast parallel 12-bit computer, an 18-bit computer, and, of course, the LINC-8, compatible to a degree never before known by mankind.

Maybe if we can't get the programs to work on the PDP-9, we might carry on the same pitch by pushing our four 12-bit computers as being the truly compatible line of computers.

We've got to move now in figuring out an advertising campaign to really attract people's attention or we're going to be in trouble for orders in a few months.

Ken

ecc

dec**INTEROFFICE
MEMORANDUM**

DATE May 9, 1966

SUBJECT Notes on Module Design

TO Dick Best
Loren Prentice
Tom Stockebrand
George WoodFROM Ken Olsen

If we find that we have to electrolytically gold plate the contacts in our new module, we might consider molding a very narrow ridge between the contacts which can be sprayed with our base conductor. These ridges could be simply broken off after the gold plating.

There also could be a notched strip out in front of the contacts which can be broken off after the gold plating.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE *May 9, 1966*

SUBJECT *Notes on Module Design*

TO *Dick Best
Loren Prentice
Tom Stockabrand
George Wood*

FROM *Ken Olson*

If we find that we have to electrolytically gold plate the contacts in our new module, we might consider molding a very narrow ridge between the contacts which can be sprayed with our base conductor. These ridges could be simply broken off after the gold plating.

There also could be a notched strip out in front of the contacts which can be broken off after the gold plating.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE May 10, 1966

SUBJECT Suggested Location for Company Picnics

TO Bob Lassen

FROM Ken Olsen

Our Sunday School found a new place for a picnic which you may want to consider for Company picnics. It is the Newton YMCA Family Recreation Center in Wayland. They apparently have much more extensive facilities than we have at Camp Ararat and they charge \$.50 per person. I have not been there but will have a chance to look it over on June 11th.

Ken

ecc



INTEROFFICE MEMORANDUM

SUBJECT 580 Tape Drives at N.S.A.

TO Nick Mazzaresse
Jack Shields
cc: Roland Boisvert

DATE May 10, 1966

FROM Ken Olsen

Major Webster of N.S.A. called this morning to complain that Harlan Anderson had promised him three weeks ago to get an answer on a request he had made, and to this date he hadn't received a reply.

They have two 580 tape drives on a PDP-8 -- one works very well and the other one is perpetually in trouble. The troubles are always different and Mr. Kimal, our maintenance man, does a good job and they have nothing but good to say about him.

They would like to send the machine back to the plant and have it completely reworked so that they can have the same reliability they have on the other tape transport. I promised that we would call him back today or tomorrow. His telephone number is Area Code 301, 688-7769. If Major Webster is not in, Mr. Pipp will take the call. Mr. Pipp will replace Major Webster one month from now.

Ken

ecc

dec

INTEROFFICE
MEMORANDUM

DATE May 11, 1966

SUBJECT Works Committee Meeting, May 18

TO Nick Mazzaresse
John Jones
Mike Ford
Stan Olsen
Win Hindle

FROM Ken Olsen

At next Wednesday's Works Committee meeting, I would like to hear a coordinate proposal on "OEM Discount Schedule."

Ken

ecc

copy to Dave Cotton

dec

INTEROFFICE MEMORANDUM

DATE May 14, 1966

SUBJECT Notes on Visit to Technicon

TO Dave Denniston
Nick Mazzaresse
Mike Ford
cc: Stan Olsen
Mort Ruderman

FROM Ken Olsen

Stan, Mort Ruderman and I visited Technicon on May 11, and these are a few of my observations. I have not coordinated these notes with Mort Ruderman so if his observations have a different slant, take his as being the valid ones because he is taking the responsibility for this.

We arrived at their office at about 11:00 in the morning and spent approximately 3/4 of an hour with two of their senior engineers, then spent lunch and probably an hour and a half with the President, Mr. Whitehead. The other Mr. Whitehead, who is quite a bit older but still very active, is father of the president and founder of the company.

We are in an ideal position to sell to this type customer and we have to get keyed up to cover all the applications, of which I feel there are many still untapped by computers.

They don't know what size computer they need but with our complete range, from the Disc-8 up to the Big-8, we can cover such a wide range of applications, and then go beyond that with the 9 and 11.

I would guess that for their application they should use the Disc-8. They make only 40 samples an hour and they could multiplex quite a few machines and do the operation on this. However, I also have blind faith that, as they get experience with computers, they will find more and more things to do. Each one of their 12 channel analyzers has a control box which probably could be done all with the computer. With 40 samples per hour, most hospitals need several of these machines.

Right now, doctors do not believe you need to make a complete set of tests and they take pride as to how much they can learn with very few tests. However, data has been collected that shows there is a lot of information lost because doctors are reluctant to ask for too many tests. They are reluctant to do this because of the large cost and because facilities are not available for testing. I believe that, in time, more powerful computers will be necessary to do the analysis which people don't now know anything about, but they will learn more about it when more detail blood tests are available.

They are talking about using 100 computers a year, which is a lot no matter which size machine it is. They might be optimistic and it might be less than 100, but even so it is well worthwhile to spend the time selling to this customer.

The strategy I would suggest is to work real hard to sell them a PDP-8 and to do everything to get them one soon. I would guess that in June we will have stripped-down, simple computers available. After they get a machine, they can learn how to use it and learn just what they should do with a computer. From that, they can decide which one of our 8 series they need. They should then have this machine in their laboratory for future development use.

As you can imagine, they are reluctant to buy the regular PDP-8 when the Disc-8 is probably what they want. However, they have to get started so they would like to have us loan them an 8 until the Disc is out. I said that we couldn't do this because of the high demand for these computers, but I would go along with renting a machine to them on our normal rental terms. After they have had it for a year, they'll have so much invested in it that they will keep it.

They are concerned about multiplexing in our A-D converters. I think it would be good if someone from the New York office spent time with them explaining how the multiplex works and what the error will be with its use. Stan, Mor and I were not able to explain it and they are afraid that an error will be some large fraction of a load because transistors were used for the switch. They might be better off using a read relay switch, but we ought to let them know what our transistor switch multiplexer will do.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE May 14, 1966

SUBJECT Advertising for the 8 Series

TO Jack Atwood
Stan Olsen
Nick Mazzaresse
Mike Ford
Win Hindle
Mort Ruderman

FROM Ken Olsen

During our visit with Technicon on Wednesday, I became more convinced than ever that we have to present an integrated picture of our 8 series machines. We have a tremendously powerful tool here which we have to exploit because we are now in a position to cover this type customer.

It became clear, however, that we have to make a very simple presentation which our salesmen can use. Stan drew on the blackboard the chart of our five different computers in the 8 series and this helped, but the message has to be simpler and pre-prepared in order to really get it across.

Here are the things which I would like to have had when we made this presentation to a new customer:

1. An integrated ad which presents the five machines so that people are pre-primed to the five machines.

The president was pleased with our word descriptions because numbers just confused him. He wanted to make a decision right there and if we could have told him exactly what to do, we could have walked off with the order. Having it simple, with descriptive words, can do wonders for us. Our ads could be two pages and include almost everything on the price list so that they give a complete descriptive picture of this whole series.

2. A large flip chart showing all the machines.

This would sure beat putting it on the blackboard. This might even be a flip chart presentation (like is ordinarily so corny) but, in this case, could be a simple way of presenting real good information. We could buy these flip type notebooks which hold the whole presentation.

3. I then would like to have left with them a pocket book the same size as our module catalog.

This should have a complete description of all five computers, including the programming manual for the 8 and the program manual for the LINC-8. If we spread a quarter of a million of those around the world, it

would be impossible for anybody else to get into the business.

With this line of computers, we have the greatest thing going since the start of the Company. We've now got to get this message across to the world.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE May 14, 1966

SUBJECT

TO Mike Ford
cc: Ted Johnson
Nick Mazzaresse

FROM Ken Olsen

I got a call from Mr. Hisey of the Wayne Dispatch in Wayne, Michigan. He said that they have developed a keyboard input which solves all of the world's problems and now they would like to be the sales representative for our typesetting systems throughout the country.

He asked if we are programmed for the Photon machine because they have one and they are trying to get into it with just writers and they are not very happy with it.

He is also tied into a management engineering firm and so could help us with other problems.

He is enthusiastic about being able to do all our selling for us and said that he has been waiting for a return call from Mike Ford for a week.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE May 19, 1966

SUBJECT New Company Letterhead and Calling Card

TO Henry Crouse
Jim Jordan
Dick Ward

FROM Ken Olsen

For several years now, I have asked for a new letterhead and calling card. Nothing has happened, except the time when we were using a new logotype.

I would like to have Henry Crouse get proposals on a new letterhead and calling card from a number of people, and use Jim Jordan, Dick Ward and his people as consultants. There are a number of people who would like to print letterheads for us, and we might as well get free advice from them.

The arrangement that I would suggest you make with these people is that we will buy the high priced engraved letterheads from them, but that we would insist on the freedom to offset print the letterhead for the large quantity mailings and maybe some of our foreign offices.

Ken

ecc



INTEROFFICE
MEMORANDUM

DATE May 19, 1966

SUBJECT Product Line Managers Meeting, May 23

TO Product Line Managers
Loren Prentice
Cy Kendrick
Ed Harwood
Jack Smith
Tim McInerney
Dick Ward
Harry Mann

FROM / Ken Olsen

I would like to schedule a Product Line Managers meeting for 8:30 Monday morning at the junk area on the top floor of Building 11.

I would like Loren Prentice to tell his plans for storage of building materials, Cy Kendrick to tell his plans for storage of unused production equipment, Ed Harwood to tell his plans for storage of unused test equipment, Jack Smith to tell his plans for storage of valuable but unused panels and in/out equipment, the Product Line Managers to tell their plans for storage of obsolete products, Tim McInerney and Dick Ward to explain who will be responsible for the literature and printed material in the storage area, and Harry Mann report on his plans for keeping old job tickets and IBM cards.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE May 19, 1966

SUBJECT Reports to the Works Committee

TO Pat Greene
John Jones
Mike Ford
Stan Olsen
Nick Mazzaresse

FROM Ken Olsen

PAT GREENE - Your report to the Works Committee yesterday was good, but you didn't have your data organized in a way for easy presentation. Will you now take the data and put it in a simple, organized way on one sheet of paper and send it to the Product Line Managers. Figure out some way of presenting the data so that the foreign operations do not confuse it, and so that people can see at a glance how you are doing and how you will be doing compared to the budget.

JOHN JONES - The most important part of the discipline of reporting projects and product lines to the Works Committee is the self-discipline that it encourages by the preparation necessary for the report. There is only a very small danger that one will be challenged in a useful way during a meeting, but the preparation and the comparison with what was promised are very worthwhile to the man doing the work. On development projects like the PDP-9 where there is no budget to be compared against, it is important to compare against schedules and I meant to have you do that for the last Works Committee meeting. Will you, therefore, for the next meeting on May 25th (when you present the software plans), review the schedules on the 7X and the PDP-9 for both hardware and software.

STAN OLSEN - Two weeks from now, at the June 1st Works Committee, will you present a review and plans for the PDP-10. Get from John Jones an outline of what he presented yesterday (and will present next Wednesday), and see if you can work out a format for this type presentation that will be most useful to yourself and to the Committee. Be sure to compare your present plans and schedule with the plans and schedule you presented to the Board of Directors meeting.

MIKE FORD and JOHN JONES - Will you write up in one page and present next Wednesday to the Works Committee, a review of our experience with our present policy on warranty and field service. A year ago we changed our accounting method for warranty and it is time that we reviewed this to see if our assumptions were correct. It would also make people feel assured to have a report on how our machines are doing financially as far as field service outside of warranty.

Ken

ecc



INTEROFFICE
MEMORANDUM

DATE May 17, 1966

SUBJECT Castable Nylon

TO Loren Prentice

FROM Ken Olsen

Castable nylon is available from the Polymer Corporation, 111 Barron Drive, Cincinnati, Ohio 45215. The trade name is MonoCast.

ecc

dec

INTEROFFICE
MEMORANDUM

DATE May 25, 1966

SUBJECT Plastic Display Balls

TO Gerry Moore

FROM Ken Olsen

When we were at the Magnetics Show in Stuttgart, we noticed that one of the German companies had a very attractive booth made up of pieces of 8 inch masonite which were about 2 feet square, held together by plastic balls in the corner. These looked very desirable because one could very quickly put up a booth to fit any shape that happened to be available. I asked Pat Greene to get the name of the company that manufactures these.

Will you contact them and ask them for literature on their plastic balls and also ask if they are available in the States. If they are not available in the States, will you have translated enough information from their brochure so that we can order them. We might order them through you and you might ship them to us.

The trees just came to leaf this past week and are in about the same development stage as they were in Europe when we were there several weeks ago. Today it feels like Spring has finally come!

Ken

P. S. Hi Gerry,

I can't read read the name of the company that Pat got for us. He had a man from the company write it out for him. Please forgive me for just attaching the slip to this memo, but I'm sure you are more talented along these lines than I am.

Elsa

No. 15628

An

usstellung

Gesch.-Stelle
Auslandsabteilung

uns besuchte heute
HERR, FRAU, FRL.,

Firmenanschrift

Art des Unternehmens: Industrie, Privatabnehmer, Wiederverkäufer, Großhändler
(Nicht zutreffendes streichen)

und bat um

1. Vertreterbesuch

2. Druckschriften

3. Angebot über

Schaufenstergestaltung

BENKEWITZ

7023 STUTTGART - Echterdingen

Stettener Str. 34

Telefon 792157

Ort und Datum

Aufgenommen durch Herrn

Angehöriger d. Werk/Abtlg./Gesch.-Stelle

Durchschlag an Abtlg., Werk, Gesch.-Stelle

Herr Olson

Here is the address

(Nicht zutreffendes streichen)

*for the plastic display
balls you saw in
Stuttgart*

Pat.

Bitte in Blockschrift!

RECEIVED

1966 MAY 24 AM 8: 50

DIGITAL EQUIPMENT CORP.
SALES DEPARTMENT

WUI NY 11*
DIGITAL MAYN
85184327"
DIGITAL READING
DIGITAL MAYN
MSG 1033 5/23/66

TO DICK BEST
FROM KEN OLSEN

PLS CONTACT MR BRYAN EVERSHED, DD DIVISION, CERN, GENEVA, AND EXPLAIN
THE STATUS OF 30 MEGACYCLE AND 10 MEGACYCLE SYSTEM MODULES. I
MET HIM IN MUNICH AND PROMISED TO SEND A NOTE TO HIM BUT MISPLACED
HIS ADDRESS UNTIL JUST NOW.

END

IS MR BEST IN THE OFFICE
GA

NO HE IS AT THE IEA SHOW BUT I WILL TELEPHONE TH E MSG
TO HIM IMEEDIATELY



INTEROFFICE MEMORANDUM

DATE June 1, 1966

SUBJECT XY Oscilloscopes

TO Henry Crouse
cc: Jim Jordan
Mike Ford

FROM / Ken Olsen

When we inspected the Tektronix 561 for use in our LINC computer and other applications for 5-inch oscilloscopes, we may have made a thorough study, but we should go back periodically and review the decision. Sometimes decisions are made without research because we are in a hurry and the decision gets propagated because everyone else feels that surely that decision was well researched. Because the 5-inch oscilloscope might be very important to us, I would suggest that we look into what else is available. One thing we are particularly interested in is one that would mount more conveniently.

Will you ask all the oscilloscope manufacturers what they have in XY oscilloscopes that are atleast 4 x 5 inches rectangular or 5 inches in diameter. It would be preferable to have them 7 or 10 inches in diameter. We need very little to gain because we have signals which are 10 volts in amplitude. It would be nice to have them transistorized because I think it would take less maintenance and we would like to have them as small as possible. We are, of course, interested in price. They should have an accelerating potential of at least 3,000 volts.

Will you contact Benrus, Technical Products Division, 30 Cherry Avenue, Waterbury, Connecticut, and ask them about their model RA-850. Two of these could be mounted on a standard 5 1/4 inch panel. The characteristic we're interested in is an amplifier in both X and Y, and we do not want to pay for the sweep circuits which are included on most ordinary oscilloscopes. This is an advantage of the 561 and the Benrus unit because we can leave out the sweep circuit module and buy an X amplifier instead. Some people make monitor oscilloscopes which might be well adapted to our application if we add amplifiers to them. We should ask Electro Instruments, Inc., 8611 Balboa Avenue, San Diego, California 92111, for information on their monitor oscilloscopes.

General Atronics, Electronic Instrument Division, 1200 East Mermaid Lane, Philadelphia, Pennsylvania makes a model K-12-R, 5 inches in diameter XY oscilloscope which is 5 3/4 x 5 3/4 x 17 3/4 inches deep. This would fit nicely into the side of a LINC or BIG-8.

James Millen Manufacturing Company, 150 Exchange Street, Malden, Massachusetts, makes module oscilloscopes which are very simple units that you mount in your own panel. I'm not sure they changed the design of these since World War II, but it would be worth looking at them and finding out the prices. Their designs can't be too old because they do use square tube.

Tektronix used to make an indicator Type 360 which was complete XY oscilloscope but without power supply. The interesting thing about this is that it is mounted vertically and might fit nicely into the LINC-8 or BIG-8. The frequency response, however, is probably very poor.

If we ever make our own oscilloscope, Lechner Manufacturing Company, 1510 North Neil Street, Champagne, Illinois 61821, might be a good source for all of these power supplies.

Another interesting company that might make oscilloscope power supplies is Peerless Electrical Products, Division of Altec Service Corporation, 1515 South Manchester Avenue, Anaheim, California 92802. They use transistor circuits and have low voltage DC inputs and mold them all in plastic.

Another one to look at for high voltage power supplies would be the company which molds our light gun circuitry.

Another high voltage company, of course, is the one who makes the power supplies for the DEC 16-inch oscilloscopes. Precise Measurements Company, Flemington, New Jersey, also appears to make power supplies like that and maybe something that would be smaller for a small oscilloscope.

Spellman High Voltage Company, 1930 Adeo Avenue, Bronx 69, New York, makes the transformers which will oscillate from low DC voltage and then produce a high voltage, high frequency signal on the output. They would probably want a special one which would deliver all the output voltages necessary for an oscilloscope with -15 volts DC as in input.

Ken Olsen

ecc



INTEROFFICE MEMORANDUM

DATE June 2, 1966

SUBJECT 338 System

TO Dave Brown
cc: Jim Jordan

FROM Ken Olsen

I would like very much to have a list of the major components that go into the 338 system, including their costs. I want to develop a feeling as to whether it is worth having a value analysis program on this system.

I am interested in the approximate prices of the large assemblies, but a few of the detailed items that I would like the prices on are:

- the cathode ray tube
- the mechanical mount for the tube
- the focus coil
- the deflection coil
- the transistor-heat sink assembly
- the resistor-heat sink assembly
- the high voltage power supply
- the power control panel (this may be used only in the scope which we sell without a computer)
- the cabinet
- the light pen

One detailed question I would like to have the answer to is, "What is the power dissipation of the resistors in the resistor-heat sink assembly, what tolerance can we tolerate in these resistors, and how many resistors are there?"

I am afraid that in years past we have gotten into the following logical trap: 1) it is easy to simplify and lower cost of the display, 2) however, if we make changes, we should also speed up the system, and 3) if we speed up the system, it is a difficult project and not worth doing.

I would like to toy with the idea of just simplifying the design and putting the 338 in a "Big-8" cabinet.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE June 2, 1966

SUBJECT Item for Evening Works Committee Meeting, June 13th

TO Works Committee Members

FROM Ken Olsen

For the next evening Works Committee meeting, on Monday, June 13, I would like to have a presentation and discussion on the schedules for each of the major projects in the Company. The schedules for each project should be sent to me within the next few days so that I can put them in simplified form on the schedule board behind the curtain in my office. The chart on my wall will be a very simplified bar chart, but the charts sent to me should be in pert chart form. In this way, we can, at any time, see what the critical paths are so that we can have some management influence on the projects when desired.

We will standardize on paper, and I will give you the dimensions later, so that we can keep them in a notebook and have some consistency within the Company. I will have a master notebook in my office and each of the product line managers will have a notebook of their own projects.

✓ John Jones should prepare the chart for the PDP-9, Stan Olsen for the PDP-10 and all the projects proposed for the module line, Win Hindle will do ✓ the PDP-11, Pat Greene his computerized tester, Loren Prentice will bring charts for the tape transport and disc projects, and Stan and Dick Best will make an approximate schedule for the ceramic project.

Ken

ecc

END OF MSGS TO PARIS

RECEIVED

966 JUN -2 PM 4: 30

DIGITAL EQUIPMENT CORP.
SALES DEPARTMENT

MSG 1169 6/2/66
TO GERRY MOORE
FROM ELSA CARLSON

IN REFERENCE TO KEN'S MEMO TO YOU DATED MAY 25TH CONCERNING PLASTIC
DISPLAY BALLS THAT HE SAW AT THE MAGNETICS SHOW IN STUTTGART, WE
NEGLECTED TO MENTION THAT HE IS QUITE ANXIOUS FOR THE INFORMATION.
HE IS NOW WONDERING IF YOU CAN GET SAMPLES AND SEND THEM TO HIM
IMMEDIATELY. THANKS FOR YOUR HELP



INTEROFFICE MEMORANDUM

DATE June 3, 1966

SUBJECT Logic Lab

TO Stan Olsen
Alex Stephens

FROM Ken Olsen

Now that we're out of the production bind in logic labs, we ought to put out a real promotion and push these. Maybe we ought to rewrite the book - I have heard complaints that it is very difficult to use. Let me know what your ideas are on this.

Ken

ecc



INTEROFFICE
MEMORANDUM

DATE June 13, 1966

SUBJECT Budgets for Component Development

TO Dick Best

FROM Ken Olsen

I have asked Stan to bring to a special budget meeting on Wednesday, a summary of all the budgets for component development in Fiscal 1967. Will you try to get your parts of these to him on Tuesday so that he can present an integrated picture on Wednesday morning.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE June 13, 1966

SUBJECT Final Budget Working Committee

TO Product Line Managers
Ted Johnson
Loren Prentice
Dick Ward
Harry Mann
Mott

FROM Ken Olsen

We wish to send out final Fiscal 1967 budgets to the Board of Directors on Thursday, June 16th. We will cancel the regular Wednesday Works Committee meeting and, instead, have this budget work session. This will be the final time to gather the budget so, with all the foregoing preparation, it should not take very long.

Here is a list of the parts which each person should bring to this meeting:

1. Product Line Managers should bring a) sales figures, b) hardware development cost, c) software development cost, d) marketing cost, e) advertising cost, and f) promotional cost.
2. Ted Johnson should bring a) foreign budget, and b) reconciliation of domestic selling cost.
3. Loren Prentice should bring his engineering budgets.
4. Dick Ward should bring budgets for manuals.
5. Harry Mann should bring administrative costs.
6. Stan will bring component development costs.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE June 24, 1966

SUBJECT John Hitch

TO Henry Crouse
cc: Dick Best

FROM Ken Olsen

I am afraid that our friend, John Hitch, is probably now selling what he learned from DEC. I also suspect that he will now try to use his contacts at DEC to get information directly from us, either by paying for it or by asking separate questions from different people. I suggest that you write a note in the Engineering and Sales Newsletters with something like the following words:

Title: Our Former Consultant, John Hitch

We have developed very serious doubts about the way our former consultant, John Hitch, operates. I am afraid that he may contact employees at DEC to obtain information about our products or our way of doing things. If anyone hears from John Hitch, I would appreciate being notified.

From: Henry Crouse

Ken

ecc



INTEROFFICE MEMORANDUM

DATE June 24, 1966

SUBJECT Physical Examinations

TO Bob Lassen

FROM Ken Olsen

We decided to limit the list of those people who the Company will insist on having annual physicals. Elsa has a copy of the list if you are interested, and she will keep after the people to make sure they do it.

Up until now, we said they could get the physical and the Company would pay for it. In order to make this a little more businesslike, we have decided that we will insist on these specific people getting physicals and the Company will pay for the physical on the condition that they have a written report sent to our Company doctor.

Will you contact Dr. Houck and ask him if this is all right with him. In this way, no one in the plant has to know the medical problems of individuals.

Also ask him to write out a suggested list of things which should be done for each individual. Maybe with such a list we can limit people for going on a three-day hospital test which would cost the Company quite a bit for the test and quite a bit for the three days lost.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE June 24, 1966

SUBJECT Noise Proofing our Computers

TO Dick Best Jack Shields
Loren Prentice Bob Savell
Larry Seligman Ed de Castro
Saul Dinman
cc: Stan Olsen Nick Mazzaresse
Win Hindle John Jones
Mike Ford

FROM Ken Olsen

It is very important that our new line of computers, the 8, 9, and 10, be insensitive to noise. With the low prices which we will be charging for these machines, and with the large number we are planning to make, it is very important that we be able to very quickly install them under any conditions and not have to spend days adjusting, and fooling around adding filtering, etc.

I would like to call a meeting next Wed, at 3:30 at which time we will pool all the information we have on radiation sensitivity, spark sensitivity, and line noise sensitivity.

I am afraid the Field Service Department has learned things that our Engineering Dept. doesn't know about, and I'm also afraid that they may be doing things which are theoretically useless. By getting together, we can develop a sound program for eliminating as much of the problem as practical.

Some of the ideas which people have proposed are:

1. Shield the AC cord all the way to the wall socket.
2. Bring the AC in through a filter panel so none of the AC cord is exposed inside of the computer.
3. Use Filtorals.
4. Use more "Q of one" filters.
5. Shield crack between doors (I don't believe this is important).
6. Ground all doors and side panels with braid, and maybe latch the doors together to complete the ground loop.
7. Put a ground shield behind the masonite control panel on the newer computers.
8. Replace all plastic enclosures with metal enclosures.
9. Use a balanced input from all cables so that all common mode noise is cancelled out in cabling.

jb



INTEROFFICE MEMORANDUM

DATE June 28, 1966

SUBJECT Bar Drilling Machine

TO Loren Prentice

FROM Ken Olsen

Before we build a bar drilling machine, we ought to talk to the die casting company to see if they would drill aluminum extrusions for us. They apparently have a very inexpensive way of doing the drilling and they might consider doing the extrusions for us.

The second suggestion would be to find out how they do it and find out who else has machinery like that.

Ken

ecc



INTEROFFICE MEMORANDUM

SUBJECT Radiation Sensitivity
TO Loren Prentice

DATE June 28, 1966
FROM /Ken Olsen

We, like many other computer manufacturers, have trouble with sensitivity from radiation. It would seem to me that we should be relatively insensitive if our doors and side panels are well grounded. In our new line of machines, the 8's, 9's, and 10's, will you consider how we would ground the panels and side panels if we find this is desirable. I think we'd need braid in each of the corners in order to get good grounding.

I would like to have all of these new machines as free from spark sensitivity and radiation sensitivity as possible so that when we make an installation it will take practically no time for the Field Service Department.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE June 28, 1966

SUBJECT Display Storage System

TO Dick Best
Dave Brown

FROM Ken Olsen

I got a call from a friend of mine at MIT, Francis Lee, who has offered to show us the display storage system which he is developing for Project MAC. He is developing a drum storage system which will keep a 500 x 500 spot display going. The logical problem which he has attempted to solve is the one that arises when you can't get all the storage on one track and have to interleave several tracks.

One of our summer employees, Barry Wessler, suggested to him that we would be interested in this. Francis graduated from MIT in about 1951 and went to work for Remington Rand and did a lot of work on the Lark. A few years ago he went to Project MAC, I think has gotten his doctorate, and is now an associate professor at MIT. He has done consulting for Honeywell on the use of the Vermont Research drums.

He is only at MIT on Mondays during the summer. If you would like to make a trip down there, I will make an appointment for us. His extension is 2579.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE June 28, 1966

SUBJECT Proposal for Discounts

TO Stan Olsen
Nick Mazzaresse
Win Hindle
Mike Ford
Howie Painter
Harry Mann

FROM Ken Olsen

There are two problems with our discount meetings. First of all, there is a strong tendency toward complex discount systems because each of you put more confidence in things we can't understand. There is also a tendency to throw out simple proposals because there is always something which they don't accomplish.

There are basically four different discount systems which we have considered.

1. In this system, each computer would have its own discount schedule although they would be made as similar as possible to make them easy to remember. There would be no interchange of discounts between computers, but anything bought in the computer area would contribute to discounts and the modules.
2. This is the same as the first, except the module orders would contribute toward discounts in the computers. This one isn't as straightforward or justifiable.
3. In this system, each of the computers would have its own discount policy dependent on total volume done with the company.
4. This system is like No. 3, except that the contribution each computer makes to the total volume of the company would be weighted according to some specified formula.

I like system No. 1 because it is the simplest one and because it is the most readily justifiable.

The question we have to discuss is, "what are the discount percentages?" I feel it is hard to justify more than a maximum of ~~20~~¹⁵% discount on any computer. I would much rather see us lower the price of our computers if we feel manufactured costs will tolerate more percentage than this. If we limit this way, we might have the same discount policy on all computers.

I am afraid that when the day comes we are faced with a \$14,000 equivalent to the PDP-8, we may be sorry if we make too large a discount on the 8. I would like to see us have a session some night where we make believe we are just faced with a high production \$14,000 computer and then decide what our plans are. After we decide on these plans, then we can freeze the discount policy if it is consistent with what we would do under these circumstances.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE June 28, 1966

SUBJECT System for Multi-layered Back Panel Wiring

TO Dick Best
Stan Olsen

FROM Ken Olsen

cc: George Gerelds
Bob Cesari

Saul Dinman

Most systems for multi-layered back panel wiring are very expensive and unreliable because they need plated through holes which have to make contact with all the layers of copper in between. Here is a system which I think is relatively simple and avoids some of the very difficult tolerance problems.

First, we would start off with the insulating material which can be very thin epoxy glass or teflon. We would punch in an array of holes in each sheet, one for each pin in the sockets. These holes are larger than the pins and therefore avoid some of the type tolerance problems.

Full sheets of copper are then laminated to each of these insulating sheets and the circuits are then etched away in the same way which we now make printed circuits. The result then is a sheet for each layer in which the copper in each hole overhangs the hole in the insulating material.

All the layers are then laminated together and the unit is complete.

There are several possibilities for electrically connecting several copper lands at a pin. If we limit the number of connections to two to each pin, we could spot weld them together. If we coat the copper with a high temperature solder, we could solder them together at each point before they are put on the connector.

If we put a slit in the copper lands instead of a tight fitting hole, the dip soldering might connect all the layers of copper together.

The technique I like the best is to print a tab on the copper land instead of a hole so that when the board is pressed over the contact the tab runs up the side of the pin. Up to four layers could be connected to one pin, using the four sides. Then when it is dip soldered or hand soldered, all the tabs can be soldered to the pin and readily inspected.

Dick Best
Stan Olsen

- 2 -

June 28, 1966

The ordinary method for making multi-layered boards is to print each layer without drilling, then laminate them all together and drill them at one time. The holes are then plated through and electrical contact is made to the conference sandwich. This is a little risky because you can never see how good a contact the plating makes with each layer and there is always the danger that during drilling the insulating material is forced down over the copper.

Stan Olsen has a card from a local rep for a laminating press company who has offered to send a reprint of how multi-layered boards are made. Some of the technology of multi-layered boards will be useful in this process. I think the technique is to start off with sheets of copper and semi-cured boards. When these are stacked up in a laminating press, the curing is complete. If we laminated with one of Dupont's clear plastic films, the package would be very thin and it would be a lot easier to make contacts at the pins. I have requested literature from Dupont as to how you laminate with their films.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE June 29, 1966

SUBJECT Annual Report

TO Elliott Hendrickson
Dick Ward

FROM Ken Olsen

We had a discussion on the layout of the inside pages of the annual report, and I have concluded that we're going to have to do some experimenting to really decide how the layout should be. As we discussed the other day, we will keep the same format as we had before, but have a different color for the cover. The first two, and last four, pages will stay the same as they were last year, which leaves us eight pages to cover the product on the inside.

We feel that the family of 8 deserves a full two-page spread because this is our key product.

The PDP-9 will be announced and will be another key product. This deserves either a full page or a full two pages.

The PDP-6 has turned out to be very successful and we should really show off the successful installations we have. This can take either a full page or a spread of two.

The modules, of course, deserve a full page. We might combine this into a two-page spread which really shows our broad-minded attitude in using all modern techniques of monolithic integrated circuits, thick film integrated circuits, and discrete components. It would also show the extensive research and development and manufacturing equipment which we are working on for making our own semi-conductors and thick film circuits.

The two items which get underplayed in this approach are the LINC-8 and the memory test equipment. These would, of course, be covered in the family of 8 and this might be sufficient. The PDP-8 memory test system could have a picture and the small description could also say that we make other testers.

Another idea came up which we ought to exploit either for the annual report or use in our advertising, and this is to have a family tree for our computers. This might be just inside the cover or, if one of our products only takes one page, we might use the other page for this family tree. After we see it drawn out, we can then figure out how we want to use it. We would divide the chart vertically into years between 1960 and 1966. Horizontally, we would have three shaded areas, 12-bit, 16-bit, 36-bit, and then in each section we would put a picture of the machine and its name.

Elliott Hendrickson
Dick Ward

- 2 -

June 29, 1966

In 1960 we came out with the PDP-1, in 1962 the second 18-bit machine was the PDP-4, in 1964 the PDP-7, and then the PDP-9 in 1966.

The first 12-bit machine was the PDP-5 in 1963, the PDP-8 in 1965, and in 1966 the family of 8. There won't be room for all the pictures of the family of 8, but they would be included later on a two page spread anyway.

For the 36-bit machines, we came out with the PDP-6 in 1964, and the PDP-10 in 1966. We wouldn't say anything about the PDP-10, except mention its name because we wouldn't want to commit anything about that.

Ken

ecc



INTEROFFICE MEMORANDUM

DATE June 30, 1966

SUBJECT

TO

Tom Stockebrand

FROM

Ken Olsen

Here is a different approach for handling chips. If we developed a simple stepping motor driven rack and pinion device that would step along on .040 inch centers, we could then make a relatively simple testing and handling device.

One of these mechanisms could drive the wafer on the X direction and another one could drive the test probe in the Y direction. We would then have a simple test device.

For handling the diodes, we could have a linear motor of one type or another go linearly back and forth between the wafer and the strate. We could position where it stops in each end by one of these mechanisms on each end. One would locate where the dice would land in the Y end of the strate, and the other one would locate where it was picked off in the Y direction from the wafer. One more mechanism would locate the strate in the X direction and another one would locate the wafer in the X direction.