

INTEROFFICE  
MEMORANDUM

SUBJECT SDS REPORT

DATE May 31, 1966

TO Ken Olsen ✓  
Product Line Managers  
Harry Mann

FROM Ted Johnson

Little or no additional information on the products of SDS. They are advertising their modules harder (Computer Design). Ken Larsen claims they are quoting 1 year (summer, 67) on Sigma II.

Organizationally, SDS is the subject of much comment. The following summarizes my opinions derived from several conversations and sources:

1. Max has delegated a great deal of decision-making. The result is a lack of same and frustrating politics and red tape. I believe they will be strained severely by not facing up to this earlier. They are just getting into committee work in a big way.
2. L. Criddle's manufacturing replacement is a loser.
3. The early SDS man who left had just fulfilled their option commitments (5 years). They plan to vacation and return to California business life. Estimated gain: \$1/2 million each. The desire to leave following options expiration carries through to other senior people who dislike the present ruthless and frustrating organization.
4. The sales force is regarded both as "schlocky" technically and tough. Internal and external people looking at opportunities are baited still by high earnings possibilities and inducements but react to pure emphasis on commissions with negligible emphasis on company image and responsibility to the customer.
5. JPL man (who we rejected as a sales engineer - I'd do it again), is reputed to have earned over \$60,000 last year (52 computers now sold by SDS to JPL, he sold 20 in a bunch and the pressure is on against SDS since they got in a bunch based on a flabby evaluation of one.
6. SDC is getting a 940 (part of a Berkeley, MIT, SDC complex) but having trouble getting any sensible information.
7. The people involved in the emotional decision to move SDS Data Systems to El Segundo from Pomona all left in the wake (Monty Hayes, Bliss Bushman). SDS is now essentially fully integrated into SDS.

8. SDSDS doesn't use SDS modules. They make and use their own.
9. Current production and shipping rate is in excess of \$5,000,000 per month, excluding SDSDS.
10. They have fallen off in their systems business overall. The sales force has been notably unable to sell systems effectively (technical competence and confusion).
11. The strike is reputedly costing them \$150,000 per day in delayed billings. I had trouble calling in and getting to a key individual.
12. I didn't find any real enthusiasm for the new product, only a realization that the Sigma series will "make or break" SDS as a separate company.
13. Sam Phillips, former Western Regional Sales Manager and one of Max's cronies, has joined SCS in Dallas.
14. Chuck Cole, recently made Western Regional Manager, formerly Midwest Regional Manager and not highly thought of as a person, just moved their Oklahoma man in as L.A. District Manager and the dissatisfaction is supposed to cause further turnover in the L.A. sales force.
15. Their San Francisco sales force is doing a great job of bringing in sales lately.
16. I believe SDS is going to significantly fall off in profits this calendar year and suffer because of the sales force, the gap between engineering and sales, and confused, political management.
17. SDS has marked up some products by as much as 4 x manufacturing cost when the market would bear it. Their sophisticated sell and pricing has made them profitable in both the systems and standard products area. Their systems operation no longer is so profitable.
18. They are trying to impose big company management and techniques, implying bringing in some new, possibly well known, figures from the outside and other companies.

Please regard the above in confidence, as some sources are personal and somewhat delicate.

I am greatly impressed by our position and reputation by contrast. As one person put it, (sales engineer), he has never heard anything negative about us (except the lack of any incentives) and the knowledgeability and sincerity of our sales force is highly thought of. A major argument is that our whole company is involved and interested in the customer. More than ever, I feel a broad, effective interface between engineering and product people and our sales engineers is healthy and vital to long-term solid product and corporate growth. I am convinced that Regionalizing will help to revitalize this link between product lines and the field and our budget should be used to up the quality of the sales force on the technical side. We have to build a strong professional sales group to attract and sustain good people and retain our image.



*equipment corporation*

MAYNARD, MASS. 01754  
TWinoaks 7-8822 TWX MAYN 816

May 31, 1966

Mr. T. Johnson  
Digital Equipment Corporation  
146 Main Street  
Maynard, Massachusetts 01754

Dear Ted:

I have organized, developed, and to the best of my ability conducted the affairs of the office in Rochester. I had hoped that my methods of dealing with customers would result in a profitable office. However, this one man office has not been able to please everyone by selling their product line as though each received 100% of the selling time.

The major problem, however, is that my methods of dealing with our customers have been condemned by you. You made it quite clear on your last trip up here that you wanted much less time given to each individual customer.

Therefore, as I cannot accept this method of operating an office, I am submitting my resignation to become effective the second of July. If it is possible to establish a new man out here before then, I would appreciate a chance to leave at an earlier date, but I do not wish to forfeit the two week vacation to which I am entitled.

Sincerely,

(Robert F. Bocek)



# INTEROFFICE MEMORANDUM

DATE May 31, 1966

SUBJECT "Junk Area"

TO Ken Olsen

FROM Harry S. Mann

In response to your request for a plan concerning the handling of "Junk Area" as it relates to Accounting, I would advise as follows.

We need both cages that are near the elevator shaft for storage of inactive accounting records and material waiting for adjustments on insurance claims. We can combine these into one larger cage at any other point in the building if someone else has a more urgent need for that particular area. We will within the next ten days move all tabulating cards and other records which are on the top floor of building #11 into those cages from various spots where they are now located.

The record retention problem suggested by the materials we keep is a common one throughout business. We are required to keep all documents that might relate to payment of people, prices charged on contracts, and things of this type for a minimum of seven years. This does not mean that we have to keep all of our records this long such as job tickets, etc., but many of them will, therefore, have to be retained. This means that as our volume expands year by year, the number of records that will have to be kept for the seven year period will generally increase and our need for space will not diminish from the present level and possibly will have to be enlarged to some degree later on.

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Harry S. Mann

HSM/clw



## INTEROFFICE MEMORANDUM

DATE May 27, 1966

SUBJECT STORAGE AREAS IN BUILDING #11

TO Ken Olsen

FROM Loren Prentice

In approximately 10 days we will complete the cages requested for by Jack Smith, Nick Mazzaresse, Bob Lassen and ourselves in building #11. These will be padlocked or otherwise locked with individual keys to whatever number is requested by the occupant.

All extra sheet metal now in our areas will be disposed of. The old lumber will be sorted and as much as possible will be moved to the basement of building #3 in the regular carpenter area; that is, those items which we would normally use on a day-to-day basis.

We will completely sort all the remaining sections; old doors, lumber sections, floors, etc. and will insist that people such as McInerney and others that are storing in that section of building #11 remove their equipment so that we can pile ours up in a neat and respectable manner.

The old doors and partition sections which we deem we will not need, will be reviewed by Maynard Industries and if they wish them, they will remove them to other storage areas and the residue of salvage lumber will be given to employees or picked up by Lydon the junk man. The whole operation should be over by approximately June 20th.



# INTEROFFICE MEMORANDUM

DATE May 27, 1966

SUBJECT Seminar on Time Shared Hybrid Computation Center for the  
TO NASA ERC Control Laboratory.

FROM

Win Hindle

Gordon Bell

Mr. Colella (491-1500 ext. 487) at Cambridge NASA is intending to hold a seminar on Thursday, June 2, at 1:00 p.m. to discuss the above subject. He would like me (and I suggested 2 other DEC people) to attend. It is an idea-generating session, and not a vendors meeting, to get ideas on the formation of a study group, scope, etc. The UAC crowd (Ralph Belluardo, etc.), Mark Connelly, and Earl Pughe are among the attendees.

I would recommend that A. Kotok and someone from the software group who is familiar with the software problem attend (perhaps Segal, Portner, or Witcraft). In addition, someone from the Sales Dept., such as Plumer, Lane, Handy, T. Johnson, or Win Hindle might attend to be introduced, and to establish the liaison with the group on a continuity basis.

The meeting will be confirmed on Tuesday, and if it is not to be while I am here, I will turn the liaison over to you.

CC: K. Olsen ✓  
T. Johnson  
N. Mazzaresse  
R. Lane



# INTEROFFICE MEMORANDUM

DATE May 27, 1966

SUBJECT "Arising from the DECUS Spring Symposium"

TO Ken Olsen

FROM Ron Smart

1. The symposium was an undoubted success as a source of valuable information and inspiration, as well as a means of useful personal contact. However, there was a certain something missing, namely the DEC sales staff. Perhaps we were doing a very soft sell (appropriately for such a meeting), but I think it may look more like disinterest to the users. Mort was there, of course, and it was his encouragement that persuaded me to attend.

I like to fit DECUS into our sales effort in the following context:

- (1) The Hardware )
- (2) The Software ) are the technical components
- (3) The Application ) of a computer sale.

Digital supplies (1) and part of (2). The users supply (3) and part of (2). DECUS provides users with a communication channel:

- (a) To one-another, to intensify activity and distribute applications success as well as new software.
- (b) To new prospects, through DEC sales effort and applications news releases.

This points to the following courses of action, which regional and district managers seem best able to implement.

- (1) Encourage customers to participate in DECUS (especially to contribute software and papers on their applications).
- (2) Encourage sales staff to read and make use of DECUS publications.
- (3) Encourage DECUS to arrange local, short meetings, (perhaps on specialized applications) to which prospects could be invited.
- (4) Help the DEC image by getting applications press releases in local trade journals.

With new staff to train, and an appreciable body of users, the New York-Philadelphia-Washington area could get to work on these points.

11. Returning again to the recent Symposium, DEC participation, at an administrative level, would have gone quite well, I believe. Our users appear to love us well enough to be genuinely interested in hearing about the company's progress and plans. Perhaps Angela could be encouraged to include such an item in future meetings.

May 27, 1966

111. Other points, which may be well known already, but which were re-inforced during the meetings and private discussions were:

Our hardware (1) "no other manufacturer can touch the PDP-8" and "we must be losing our shirt, selling it for only \$18,000."

(2) We seem to be tending towards a supplier of central processors, with more and more customers supplying their own peripherals and implementing our standard options themselves.

Our software (1) We should provide more modular and in some cases better documented software, so that customers can more easily tinker with it. The PDP-6 software is probably better in this respect than the PDP-8 and of course PDP-7. What we need to appreciate is that our software as well as our hardware, is commonly interfaced to and tinkered with.

Application needs (1) The CRT display and light pen is being justified as an i/o device, on the grounds that it provides the best computer interface for the non-computer oriented user. This is not only the case when graphical i/o is required. The 340/PDP-7 has logical difficulties, making it hard to use in this role. The 338 is generally better, but still very expensive as a user station. (The "PDP-10" with a cheap display has possibilities because of price).

(2) Biomedical signal processing traditionally thought to be "low frequency", is tending towards a megacycle. Two causes are, more sophisticated analyses and multi-channel inputs. (Evidently we can make very much faster computers and some biomedical people will still want them).

(3) A serious speed bottleneck for us is the convolution calculation (as in digital correlation and digital filtering - i.e. time series processing). This currently holds up on-line signal processing. The basic operation (mult and add) takes about 50 microseconds, including "red tape". It can be done with special hardware in 1 microsecond. I'll worry about this some more.

Conclusions. The meeting was very good. However a more intense DEC involvement (particularly of sales-application people) should give us good returns from our investment in DECUS. DECUS will cost us more in the future, with increased user numbers, therefore we need to make best sales use of the organisation.

*This is a fairly compressed report Ken. I'll go into more detail if needed.*

*Ron.*





# INTEROFFICE MEMORANDUM

DATE May 27, 1966

SUBJECT SYSTEM MODULE CATALOG

TO ✓ Ken Olsen

FROM Alex Stephens

cc: Stan Olsen  
Frank Kalwell

Request re: CERN; your memo dated May 3, 1966

Your memo referenced above was referred to me yesterday. We are completely out of stock on System Module Catalogs. We have plenty of the last version of the FLIP CHIP Catalog if that will be any help.

A.S.



# INTEROFFICE MEMORANDUM

DATE May 26, 1966

SUBJECT

TO K. Olsen ✓  
N. Mazzaresse

FROM J. Smith

The areas for obsolete peripheral equipment and wired panels have been cleaned out. "Fish" boxes are due in today and will be set up in these two rooms.

With the after school, 3:00 to 6:00 help, I am in the process of stripping wired panels for useful parts.

Peripheral equipment is being stripped for spare parts.

Posted outside each stock room will be a listing of parts that are currently stored. In and out transactions will be noted on the sheet, which will result in a running inventory of what is stored.

Field Service will receive a copy of the peripheral-parts listing.

The scrap metal was picked up today. Silk screen frames were removed from the scrap pile.



## INTEROFFICE MEMORANDUM

DATE May 25, 1966

SUBJECT Storage of Obsolete Production Machinery

TO K. Olsen

FROM C. Kendrick

cc: Works Committee

Production machinery that has been obsoleted by changing production methods and changing products shall be stored in the area in building number 11 designated for this purpose.

This machinery shall be placed in an orderly manner on shelves or pallets inside the designated area.

This area shall be inspected by the manager of Module Assembly the first of each month. A log shall be kept on each piece of machinery, and once a year a determination shall be made by the Methods Committee whether to sell, scrap or save.



## INTEROFFICE MEMORANDUM

DATE May 24, 1966

SUBJECT U. K. Manufacturing Facility

TO ✓ K. Olsen

FROM R. Belden

cc: J. Leng  
N. Mazzaresse

Attached is a PRELIMINARY plan for the U.K. manufacturing facility. I have made this outline primarily to raise questions which can be answered during the next few months of study.

I would appreciate your comments.

RB/pr

Plan of Operations 1966-1967  
for  
DEC UK Manufacturing Facilities

OBJECTIVE:

Establish European manufacturing facilities which will be capable of contributing 30% to 50% of the cost of sales to the European market by 1970. During this period the European manufacturing commitment will be continually re-viewed in view of the changing USA and UK economic climates.

CONDITIONS FOR MANUFACTURING:

1. Sales to government and OEM customers will be enhanced with English manufactured equipment. We are having less success selling to these customers as other English manufacturers develop.
2. The addition of a small computer check-out facility will permit additional computers to be delivered. Computer check-out capacity is a continuing problem.
3. Both the PDP-8 computer and the FLIP CHIP Modules have been in production for over a year. The manufacturing methods and reliability have stabilized.

TIMING:

A building, engineer, and manager are available now. Planning should continue during May, June and July. PDP-8 check-out should start in July, with assembly and check-out starting in August.

1. Initial studies of UK manufacturing were made a year ago by John Leng. An installation was postponed because of a lack of personnel, and the newness of the PDP-8.

2. A building with 8,000 square feet usable floor space (one floor) is now leased and ready to be outfitted for manufacturing.
3. An English graduate engineer who has worked in UK field service for over a year is ready to develop a group of assembly and check-out technicians.
4. A member of the Maynard manufacturing staff is ready to coordinate and manage the first years operations.

EIGHT MONTH SCOPE    MAY-DECEMBER 1966

1. Establish the building, equipment, personnel, and supply sources to perform the final assembly and check-out of PDP-8 computers in Reading. Emphasis is to be placed on quality assurance and the planning and scheduling of equipment received or shipped.

2. Investment/Expenses added during the period:

Salaries (7 men by 12/66)	\$10,000-\$40,000	/month
Operating Supplies + Tools	\$ 2,500	total
Building Improvements	\$ 3,000	total

(not including additional power if needed)

3. Schedule:

May-June: Complete building layout and improvements; collect and ship necessary equipment; hire two men; review sources of UK material supply which have been under development for past 6 months; decide on figures of merit by which to evaluate and review the UK operations.

July-August: Hire two men, final assemble and check-out, two PDP-8's with two men from UK behind closed doors at Maynard to learn some problems of operation-at-a-distance; simulate communication

and shipping delays; ship first two PDP-8's to UK for assembly and check-out.

September-  
October:

Hire two men; complete five PDP-8's for delivery to European customers; confirm supplies of memory stacks, transformers, capacitors, metal frames, wire and wire-wrap services.

November-  
December:

Hire two women; complete twelve PDP-8's; start assembly of 708 power supply for PDP-8 using UK materials; add UK memory stacks; assemble module assembly materials and equipment for shipment to the UK.

STATUS REVIEW:

Prior to addition of more detailed assemblies and module production, review progress and success of operation.

SIX MONTH SCOPE JANUARY-JUNE 1967

1. Add more assembly steps, wire wrap services, interfaces, cables; start FLIP CHIP Module assembly; increase volume to service all of the European PDP-8 requirements (approximately 10/month).

2. Investment/Expenses added during this period:

Salaries (8 women)	\$ 2,000 /month
Operating Supplies and Equipment	\$ 1,000 /month
assumes a) Universal Instrument Insertion Machine	
is free at Maynard	
b) Old interface from Automatic Module	
Tester-1 can be transferred to UK.	
UK has a PDP-4 to operate it.	

3. Schedule:

January-  
February:

Hire two men, six women; complete 18 PDP-8's; add UK teletypes; start using UK wire wrap

services for processor wings and standard options; assemble standard option interfaces; start module assembly of five types of high-volume (standard component) FLIP CHIP Modules; survey Germany for possible module production location.

March-April: Hire four women, complete 20 PDP-8's; add five additional types of FLIP CHIP Modules; start using UK metal frames and plastic cover for PDP-8; make cables.

May-June: Continue as above;

STATUS REVIEW:

Prior to addition of more detailed assemblies and module production, review progress and success of operation.

R. Belden  
5/24/66






# INTEROFFICE MEMORANDUM

DATE May 23, 1966

SUBJECT Literature and miscellaneous material-building #11

TO Ken Olsen  
CC Dick Ward  
Ted Johnson

FROM Tim McInerney



Following are plans for handling the subject literature and miscellaneous items in the building #11 junk area:

1. We are putting together a list of all literature which is current and of value to all product lines. All of this current literature will be immediately inventoried, rearranged and neatly stacked in building #11 area.
2. All literature that is evidently obsolete, will have to be discarded at the discretion of the Product Line Managers involved. This can be accomplished by pulling one sample of each obsolete piece of literature, putting all the samples together in a binder and sending these packages to the Product Line Managers for their decisions for which should be saved or discarded. A list of all other items such as leatherette binders will be included for their information.
3. The area of envelopes, binders and other stationery stock will be inventoried and turned over to Henry Crouse's area for future handling which would include re-ordering when needed.
4. As soon as it's feasible and the area is rearranged satisfactorily for inventory purposes, an order should be given to Loren Prentice to have the entire area fenced off and locked to all but authorized personnel.
5. Currently the literature stock room in building #3 (next to PDP-6 Sales) is being handled by a part-time high school student from 3 in the afternoon to 5 in the evening. I would recommend that with the summer recess from high school, he should work full time at handling both this stock room and the inventory control of the literature in the building #11 junk area. After reviewing both these areas over the last few days, it is very evident that someone should be working full time at keeping all mailings current and up to date as well as all inventories up to date.

6. Printing paper stock will be inventoried by Dean Lewis. Unusable material can be padded for company internal use.

TJM:kge

Kea



# INTEROFFICE MEMORANDUM

DATE May 20, 1966

SUBJECT F.J.C.C. Planning Meeting

TO Those Concerned

FROM *Tim*  
Tim McInerney

At the May 19 meeting, the following items were discussed with relation to our exhibit at the F.J.C.C. in San Francisco, November 8-10:

1. How much equipment: It was generally agreed that we should show our "Family of Eights" along with the PDP-9 and PDP-11. The "Family" includes:
  - Serial 8
  - Disc 8
  - Great 8
  - Big 8
  - LINC8
  - Display 8
  
2. Idea: After a lot of discussion about a message, theme or idea we want to get across at the show, "The House That Modules Built" was tentatively agreed on as being a way in which we can, by exhibiting in a "house" or home motif, convey the following important points:
  - A. Impressing visitors with the fact that Digital Equipment Corporation is a company which "houses" and produces a complete "family" of quality computers and modules. This could be physically accomplished by exhibiting the "Family of Eights" in one room of the house, the PDP-9 in another room, and the PDP-11 and modules in other rooms.
  - B. That our improved software capabilities be highlighted somewhere in the house by placing all of our software literature in a bookcase display in one of the rooms.
  
3. Layout (arrangement): This will have to be decided at a future meeting.
  
4. What animation?: A display, located in an appropriate area for easy viewing by all passers-by, could fulfill our animation requirements.

The meeting adjourned until next Friday, May 27, at 3:30 P.M., at which time, Jim Jordan will present sketches consistent with what was discussed in our last meeting and outlined above.

The following people were in attendance at the May 19 meeting and are expected to attend next Friday's meeting in Ken Olsen's office:

Ken Olsen  
Stan Olsen  
Nick Mazzaresse  
Win Hindle  
Mike Ford  
Alex Stephens  
Allen Kluchman  
Joe Nangle  
Alan Titcomb  
Tim McInerney  
Jonah Kalb (from agency)  
Jim Jordan

not in attendance but should attend the next meeting:

John Jones  
Dave Cotton



# INTEROFFICE MEMORANDUM

DATE May 19, 1966

SUBJECT Summary of Week's Activity

TO Ken Olsen

FROM Rod Belden

## Review of Subcontracted Work

Working with Bill Bracket, Ron Chestna, Jack Smith, and Lee Goodbar. We have lists of all work that was being contracted and its costs.

## PDP-8 Power Supply (708) Built In-house

Two weeks ago, Production B began building all power controls on the mother shift. With the help of Paul Green, this group is being enlarged to take on the 708 power supply. Now the group is being transferred to Bob Maxcy's supervision. Sanders Assoc. charge to assemble the 708 is \$86. We estimate DEC's cost at \$50.

## Continued Support of Fred Barry, Consultant

Assisted in developing production schedule for June. Next week we get to inventory analysis.

## Continued Work with Dave Packer on EDP Steering Committee

## 12 Month Manufacturing Requirements

Collected product line budgets and forecasts.

## Foreign Manufacturing Capabilities

With John Leng, Denny Doyle, Jack Smith reviewed need and ability to check out PDP-8's. Received proposals from both Canada and England for check out assistance starting in two and four months.

NEXT PROJECTS

Develop a concise set of Manufacturing Reports from each area which will permit both the area manager and top management to see progress or potential problems.

Assist product lines with the preparation of their 12-month requirements.

Review selected inventory levels for progress within their budget.



# INTEROFFICE MEMORANDUM

Page One

DATE May 18, 1966

SUBJECT Hamilton Standard's failure to order proposed PDP-8

TO Ken Olsen ✓  
Nick Mazzaresse

FROM Perry Harris  
Northeast Sales

On February 24, 1966 Art Ostheimer and Paul Lucas (who already has a PDP-8) of Hamilton Standard visited Maynard to talk the possibility of mounting a PDP-8 in a helicopter. Since Lucas already had an 8 they were familiar on all of its features. Their main concern was -

1. Could the 8 be mounted successfully in a helicopter.
2. Could the 8 be delivered soon enough (June).
3. Was the 8 capable of running their problem in real time.

Henry Burkhardt and I spent the morning analyzing the programming of their problem and decided that it could be handled with the 8 equipped with an extended arithmetic element. I showed them what we were willing to do environmentally with the 8. (Hold down bars, RFI cabinet, fungus spray, etc.). I also stated I thought they could get a June or July machine if a purchase order was submitted immediately. They seemed very enthusiastic.

On March 2, 1966 Ostheimer called stating he needed a firm price quotation immediately. I sent appropriate TWX that afternoon. The next day he called saying we would receive the order if we could guarantee delivery for June. The same day Ken Olsen received a call from the head of Broadbrook Labs asking for a personal commitment for June delivery. Ken checked with me; I stated we had a machine we could hold open for this delivery. Ken then called me later that afternoon stating we would be receiving an order that week.

As to my knowledge, no LOI was ever submitted by Hamilton Standard. I called Ostheimer on March 8; he stated the order was being processed. I called Ostheimer on March 25, after no word or order; he was sick. I finally reached him on March 29 stating we had been holding a machine for nearly a month and had to have the order. He called back on the 31st stating they had given the order to 3C's for a DDP-116. I was quite shocked since I had no knowledge that any other machines were being considered. I tried to salvage the sale by calling Ostheimer and telling him if it was a question of delivery we would give him one week delivery on a basic 8. (This was the

Page Two

Disco machine that was not shipped due to DEctape). He said that a committee had made the decision, that the order had been placed, and that there was no chance of having the order changed.

In conclusion, the best single reason I can think of for having lost this sale is my assumption that the order would be placed after both Ostheimer and the head of the Lab told Ken and myself that the order would be in within one week. If I had thought they were still in the evaluation process I would have attempted to talk further with them before they finally chose a system.

RPH:mcp





# INTEROFFICE MEMORANDUM

DATE May 16, 1966

SUBJECT

TO Ken Olsen

FROM Fred Gould

I have made arrangements with Mr. Philip Engel, President of Instrument Development Laboratory, Attleboro, Massachusetts to meet here in Maynard, on May 24, 1966 at 10:00 A.M.

In attendance will be the principals of the parent company, Kollmorgen, Inc., Northampton, Mass. The principle subject of our meeting will be the PDP-10. Mutual secrecy agreements are in the mail and will be in effect.

If you find that your schedule will permit, I would like you to be present.

/mp



## INTEROFFICE MEMORANDUM

DATE May 11, 1966

SUBJECT JUG/DECUS Workshop

TO Ken Olsen  
Nick Mazzaresse  
cc: John Jones

FROM Angela Cossette

The JUG/DECUS Workshop which was held on Friday and Saturday, April 22 and 23, 1966, was highly successful and was the first effective meeting to stem from JUG (Joint Users Group). JUG consists of 14 user groups and is part of the ACM. Its purpose (which was questioned at the workshop) has been vague. Its objectives as stated in its bylaws is "The establishment of communications among digital computer user groups to promote study, exchange of information and cooperative effort in areas of common interest." The attendees of the workshop felt that this workshop was the first effective sign of fulfilling this objective.

The user groups which attended the workshop were: CAP (3 C's), COMMON (IBM), DECUS, G-15 EXCHANGE (CDC), G.E., GUIDE (IBM), Honeywell-800, Raytheon, SDS, SHARE (IBM), TUG (Philco), and UNIVAC. The workshop was organized by DECUS, and was arranged by the committee with little or no assistance from the JUG Board. The committee consisted of: Richard McQuillin, Inforonics, Inc.; Joseph Lundy, Inforonics, Inc.; Elinor Burns, Computer Control Corporation; and myself. Attached is the agenda of the meeting along with a copy of the report presented by Richard McQuillin to the JUG meeting on Monday evening, April 25th. Many things resulted from the workshop, a few are:

1. The need for more workshops of this type within the JUG organization.
2. The need for standard programming procedures within user groups.
3. A committee known as the JUG Program Library Ad Hoc Committee was formed to decide whether it would be worthwhile to establish intergroup communications of programs and publish a compiled catalog of programs. The committee members are mentioned in the memo by Richard McQuillin attached.
4. The meeting also indicated that DECUS is in "good shape" in comparison to some other user groups that have been in existence a longer period of time. Our user group-manufacturer relationship is also excellent in view of some other user groups; for example, the IBM user groups.

DECUS proved unique in the fact that all user group activities are performed by the Executive Secretary, from preparing meetings to reproduction of library programs. All other user groups' library programs were handled by the manufacturer. The majority of the user groups did not have an Executive Secretary devoting full time on user group services. Others had the elected Secretary working on a part time basis for the user group. The groups which had

part time Secretaries showed that their user group was not very effective such as Honeywell, Raytheon, and TUG. I would like to add that several people commented that DECUS was a lot larger and more active than they realized. Dick McQuillin's report attached will give you additional details. The minutes of the meeting will be ready in about a month as we are busy preparing for the Spring Symposium and there isn't time available for transcribing notes. If you are interested in seeing these minutes, please let me know.

AJC/bm  
Attachments



# INTEROFFICE MEMORANDUM

*dk*

DATE May 10, 1966

SUBJECT Physics Conference at  
Argonne National Laboratory

TO K. Olsen  
N. Mazzaresse  
W. Hindle  
S. Olsen

FROM A. Titcomb

A three day conference at Argonne brought together a large percentage of the computer user's in the Physics world (U.S.A.) Attendees included Fano (MIT), Fernback (LRL) McCormick (Illinois), Spinrad (BNL), Taft (Yale), Coons (MIT), Ledley, Norbeck (Iowa).

Many presentations were given, panel discussions held, questions asked, etc. All of Digital's computers were mentioned (PDP-8, 7, 6, 5, 4, 1.) Naturally, other machines were often talked about and speakers were seldom if ever, derogatory concerning hardware. One of the most popular pastimes was the criticism of manufacturer's efforts in supplying good software. IBM was often mentioned as an offender in this respect. (IBM has most of the business).

Physicists are most attracted by hardware and seem to enjoy describing hardware and comparing one set of specifications versus another. Programming is usually referred to as a problem.

A chart comparing 31 small to medium scale computers was presented to the group. Copies were soon exhausted. PDP-7 and PDP-8 were listed but with incomplete information. Although PDP-6 was not mentioned, Sigma 7 is found on the chart.

Fernback of LRL gave a comparison of large scale machines. Sigma 7 was mentioned as being outstanding in value.

Spinrad (BNL) has a Sigma 7 on order and was heard to comment that DEC was naive to attempt to develop a time-sharing system without a disc or drum.

A customer of ours at Argonne asked about our plans for a 32-bit machine as they desire a system which may be linked in a most compatible manner with IBM. Without such a machine in our line, they feel they will go SDS.

Physics Conference (Continued)  
May 10, 1966

I would estimate that I talked with twenty different Physicists at the show and that John Allen Jones spoke with 25 - 50. Digital was one of two computer manufacturer's represented (a fortunate accident, thanks to Ken Larsen). The IBM man was traveling as being from Yale University. (IBM is currently developing a system for the Tandem Van de Graaff at Yale.)

My recommendations to DEC management based on what I learned at the meeting are as follows:

1. PDP-6 Group:

- a. Consider how to best overcome real and/or apparent advantages of SDS Sigma 7 and to provide field sales and others with suitable information and inspiration.
- b. Be specific, compare 32-bit or 36-bit, speed, cost, etc.
- c. Sound out key customers on PDP-6X.

2. Small Computer Group:

- a. Offer the PDP-8 with a DISC!
- b. Consider how PDP-9 will measure up to SDS, IBM, CDC.

3. Both Groups

- a. Develop good software and get good information to customers.

4. Modules

- a. Respond to IC's in a positive way.



## INTEROFFICE MEMORANDUM

DATE May 10, 1966

SUBJECT Iron Curtain Policies

TO Ken Olsen

FROM Ted Johnson

With respect to your memo on Iron Curtain markets, I have been investigating this to some degree and attended the discussion that was held at the Fall Joint Computer Conference in Las Vegas. I don't think it is possible to make a definitive statement, but here are the facts which I think should be brought to bear and which tend to convince me that this market will, in fact, be opening to us in a year and a half or so from now.

1. The Government has loosened up in several areas, including nuclear reactors for Rumania, by signing the trade agreements with countries like Poland and Rumania whereby, they agree not to let the equipment pass out of the country and will be using it for certain purposes. I would think a nuclear reactor would be reasonably strategic material.
2. The definition of goods which we can't sell and won't receive State Department approval on are those which they feel contribute substantially to their technical and industrial base. That is, the capability for making war.
3. Advanced computers fall in this category and the countermanding philosophy is that if the computer we would be selling can be sold from manufacturers in western Europe, we will sell our machines in-as-much as we have leadership in some areas over any western European manufacturers in class and speed of machine for example. The State Department will, if they investigate it properly within the context of this policy, decide that we can't sell.
4. The current LINC-8 to Czechoslovakia is a good test case and it looks like it might go through.
5. President Johnson is serious about his building bridges philosophy as an approach to peace. I fully concur with this policy myself and it is apoint which CDC is currently stressing very strongly namely, that support and communication on the level of computer selling and purchase will be a solid step toward building a rational relationship between the Soviet Union and ourselves.
6. CDC does seem to be the loudest voice.
7. John Leng has sent some reports back on the volume of business various people have done.

8. Mr. Nash of Plessey, who was here last week, has been very active in the Iron Curtain countries and maintains an office in Moscow. He feels that people are extremely capable and, in fact, buy machines and do not require service and do everything themselves. The problem of dealing with them is strictly a problem of queuing which sounds strange coming from an Englishman!
9. I really doubt that IBM is selling so many 1401s to the Soviet Union but, on the other hand, it fits the context of the policy as stated above.
10. I want to be sure that I have a chance to see Jean Lebel this time. If we want to explore Israel, this relates to a separate memo on Dr. Harel.
11. Bernard receives a lot of information but his filtering is not the best.

TGJ/mr



# INTEROFFICE MEMORANDUM

DATE May 7, 1966

SUBJECT Your Memo "Shipments to Europe" 4/28/66

TO Ken Olsen

FROM Ted Johnson

With respect to the quality control on paper processing for foreign shipments that you mentioned in the subject memo, we have repeatedly urged that some consideration be given to the problems of preparing Import Licenses and assuring accurate paperwork and accurate correlation with the shipment preparation. Because of the peaking-up of our shipments at the end of every accounting month, this often leaves Brad Towle with a matter of just a few hours in order to arrange for the shipping and finishing of packing lists and necessary paper required with shipments. I believe this is putting an unfair burden on the system and that we shouldn't be staffed up to do a job when 80% of the shipments are shipped on two days of the month. We are doing what we can to alleviate the problem and to clean up our paperwork but the mistakes in shipments are a whole sequence of possible errors. Things that we should look into are: more efficient batching of shipments, better control of the shipping room, more time allowed for preparing paper, better shipping agents and, possibly, even using our own truck and monitoring the shipments all the way into the airport to make sure they get sent out on time.

The latest suggestion to get away from mistaken shipments is to actually paint the boxes a unique color so that the shippers will tend to keep the correct boxes together. The whole problem of packing is that shipping has been a confused and fragmented situation in the plant and we are way overdue for centralized shipping and traffic control. Jack Shields is writing an interesting memo based on his visit to American Optical's plant showing their capability as a 10,000 employee company to get 24 hour delivery anywhere in the United States on 20,000 parts a month. I estimate that we must be shipping about 1,000 parts a month and wonder what we are doing thinking of using Allied as an excuse for not solving our distribution problem.

TJ/mr



*équipement*



65, RUE DU FAUBOURG SAINT-HONORÉ  
PARIS 8<sup>e</sup> - Tél. 256 13 28 - 256 11 37  
TÉLEX : 26.705 DIGITAL PARIS

Paris le 4 Mai 1966

Mr. Kenneth OLSEN  
President  
DIGITAL EQUIPMENT CORPORATION  
146, Main street  
MAYNARD  
Massachussets

Dear Ken,

It was a real pleasure to see you and to speak with you in Switzerland and in Paris.

I hope you were not too disappointed by my activities and results in South Europe. The market, here, is tremendous, especially in France where unfortunately it is perhaps more difficult than elsewhere for the time being. My target is to make as much sales as possible with a real profit and to send as soon as possible the cost of good sold to Maynard. I am also trying to reduce the operating expenses.

The first name of Jean Lebel's wife is "Clarisse". They live at :

"Les Hautes Bruyères"  
Saint Rémy l'Honoré  
par les Essarts le Roi (Seine et Oise) France

A few days ago, Arnaud de Vitry introduced me to Mrs. Dorothee RAW.

Micheline (my wife) sends her best regards to Mrs. Olsen.

Very Truly Yours,

A handwritten signature in blue ink, appearing to read "Bernard Haus".

Bernard HAUS



# INTEROFFICE MEMORANDUM

DATE May 3, 1966

SUBJECT SPRING JOINT COMPUTER CONFERENCE HELD IN BOSTON  
APRIL 26th - 28th

TO Stan Olsen                      John Jones      FROM      Jim Jordan  
Ken Olsen                      Howie Painter  
Loren Prentice                  Paul Rawson  
Tim McInerny

I was impressed with the amount of open space. I guess this was a result of the relatively few exhibitors. Most of the trade shows that I have attended have been heavily populated. Another thing that was immediately apparent was the high quality of the exhibit presentations. The Digital Equipment Corporation presentation had some short comings. As a general view, I think that in the future Industrial Design should have the opportunity to comment on all exhibits. This could prevent some obvious oversights. The specific short comings that I saw were:

1. Skids were still on the equipment. They should be removed.
2. A fabric was used to cover bases. No drapery should be used in a booth, unless they are specifically planned as a background. (They do not work as slip covers for stands or skids.)
3. The black logo used at the top of the panels came off very badly. It was too black and had no relationship to the rest of the graphics. I recognize the need for some sort of emphatic company identification, but this approach was unsuccessful.
4. Some sort of lighting is needed on the background, either from the front or as a header.
5. The furniture in the booth was a real hodge-podge. A number of chairs, tables and ash trays which would be consistent and compatible and do a great deal to enhance the quality appearance of the booth can be purchased for a minimum amount of money.

Some other comments made to me were:

1. There was not enough depth to the booth for the equipment or for people to move in and out of it. I don't know what the solution here should be, perhaps a larger block of booths.

- XERO COPY
- XERO COPY
- XERO COPY
- XERO COPY
2. The static in the rugs is playing havoc with the programs. The solution to this would be some sort of vinyl tile approach; or there is currently on the market, carpeting that has fine wire woven into the backing which can be grounded and will completely eliminate the static electricity problem. Whenever we have displays, we should have an overhead scope monitor. Ideally ambient light would be subdued. This could be accomplished with a localized shield or an overhead canopy.

The general quality of the booths was good. The equipment is coming up to a generally high design level. Incidentally, IBM is no longer the only "Pace Setter" in the industry. Two examples of others attaining leadership are Milgo with black glass doors and SDS, who have changed their logo, standard type face and cabinetry treatment. A lot of exciting work has been done on the console area. The handling of the name plates, cabinet colors, and accent colors is all very new and fresh. The booth was also very well planned, executed and presented.

Two specific conclusions that we can draw from the show are:

1. Our booth did not show the company off to the best advantage but improvements can very readily be made by utilizing the Industrial Design department.
2. We should steadfastly continue our product design effort at the same level at which we have been going for the last two years. There are many direct competitors that are presenting very good design so that the future will be in the direction of better design. We will have to work very hard to maintain our current position much less to lead the industry.

dec

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.

ecc

*Suggested moves look real good. Win Hindle's move would seem to be the less expensive and trouble and should maybe be completed first.*

*Hindle*

Ken



# INTEROFFICE MEMORANDUM

DATE April 29, 1966

SUBJECT

TO Ken Olsen

FROM K. Larsen/R. Wilkinson

Boeing insisted on information from DEC for up to ten dual processor PDP-6's to be used as Minute Man training simulators. Wilkinson and Larsen submitted a high-priced sketchy proposal in order to discourage them. This was done to keep our very close contacts friendly.

Boeing is now enthusiastic. They want to visit the plant and meet top level PDP-6 people.

Although Win Hindle and Bob Lane have asked us to close out this opportunity as per DEC policy, we believe that the magnitude of the potential sale warrants top management consideration before doing so.

The facts:

1. With 90% probability, Boeing will buy up to ten \$1.3 million systems, one or two at a time, during the next 18 months. They will also need \$50-75K in modules for each system for interface work and spares. DEC's probability of winning the contract is about 40%.

2. Each system should consist of:

2 - 16K PDP-6's with DEctape and fast memory. Processors will share a third 16K memory bank.

1 ea: Line Printer, Card Reader, <sup>700/800</sup> Card Punch and Data Products 500 million bit Discfile.

4 - Datamec 3029 60KC tape transports working through our <sup>522</sup> ~~552~~ magtape control.

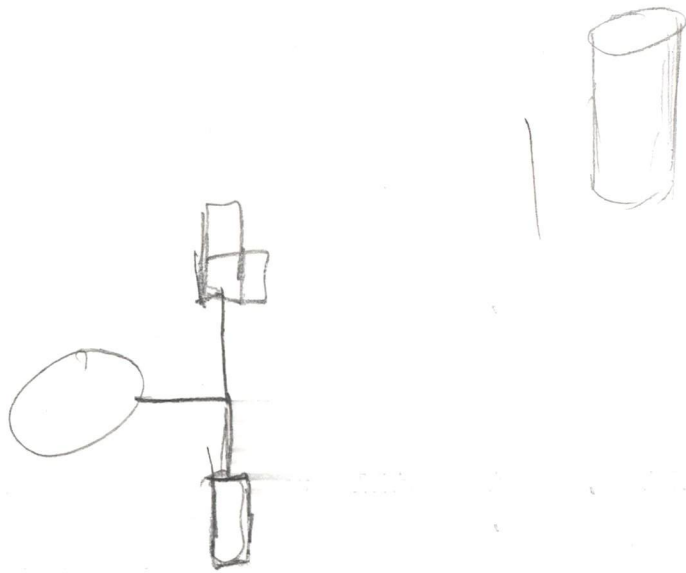
Several TTY Stations with 630

DEC standard software package - plus Boeing-funded Monitor expansion.

3. Boeing will make progress payments on all contractual items.

Uses of development funding:

1. Program management	8 man mos. @ 5K	40K
2. Project Engineer	8 man mos. @ 4K	32K
3. Card Punch Interface Design	2 man mos. @ 3K/mo.	6K
4. Discfile Monitoring	6 man mos. @ 3K/mo.	18K
5. Software (monitor Expansion)	6 man mos. @ 3K/mo.	18K
6. Machine time for Boeing	200 Hours @ \$100	20K
7. Documentation	2 man mos. @ 3K	
	(plus printing)	
		<u>12K</u>
		\$146K



	\$146K total
First system development funds	<u>\$110K</u>
Applicable to future systems	\$ 36K
Add second system costs	<u>24K</u>
	\$ 60K
Second system funds	<u>60K</u>
Surplus dev. funds	\$ 0K
Each additional system adds net dev. fund revenue:	\$ 35K

Advantages to DEC:

1. All development work would be completely funded, DEC property thereafter, and paid at the rate of \$110K for the first system and 60K for each additional.
2. \$12,000,000 potential revenue during the next two years.
3. DEC Field Service will be required only until Boeing ships each completed system. Boeing will train all Minute Man personnel.
4. Establishes DEC as a major supplier to a very large computer user whose technical competence is highly respected.
5. Dramatically penetrates the real-time simulation market.
6. Boeing will pay for any PDP-X processors retrofitted to replace PDP-6's.
7. Profitability will be good because
  - A. development will be fully funded and
  - B. average discount should not exceed 10%

→ Use people from CCC ??? ←

dec

INTEROFFICE  
MEMORANDUM

DATE April 27, 1966

SUBJECT Secrecy Letter

TO Ken Olsen

FROM Fred Gould ✓

We have asked Mr. Philip Engel, President of Instrument Development Laboratory, 67 Mechanics Street, Attleboro, Massachusetts, to send you a letter stating his agreement to keep secret any disclosure we may make to him during our product presentation.

Due to the nature of his product, he asked us to reciprocate.

Will you please mention in your letter the time, date, and location of our presentation.....May 24, 1966, 10:00 A.M. at 146 Main Street, Maynard, Massachusetts.

/mp





# INTEROFFICE MEMORANDUM

DATE April 27, 1966

SUBJECT Proposal for Manufacturing Development Modules

TO Production Planning Committee FROM C. Kendrick

The Module Assembly department is prepared to assist the product lines by scheduling quantities of prototype and development modules that are greater than can be handled by the Model Shop.

The following few simple steps will help solve communication difficulties and assist the engineer in supplying the necessary information to the Assembly group to facilitate the procurement of materials and the production of "Limited Release" modules.

1. Early information about special material is helpful; long delivery of special purchased parts delays assembly.
2. When the circuit design is firm, complete the limited release form (copy attached) and forward it to the Module Assembly Production Control office.
3. A model must be supplied for preparing a bill of material and as an assembly guide.
4. The model should be clearly tagged "Limited Release" for the required number of modules.

To prevent any possibility of duplication, the model will be returned when the modules are delivered.

Herb Norton has been assigned to prepare temporary parts lists, accumulate material and follow special units to their completion. All limited release order forms must be authorized by the product line manager and signed by him or his agent.

LIMITED RELEASE

Development Number:

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Module Type: \_\_\_\_\_

Date Required: \_\_\_\_\_

Authorized By: \_\_\_\_\_

Product Line Manager or His Agent

Special Instructions:

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---

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---

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DO

1. Order special material as soon as possible.
2. Release circuit board as soon as design is firm.
3. Supply limited release model.

PRODUCTION CONTROL CHECK LIST

1. Order special material.
2. Schedule circuit boards.
3. Prepare bill of material.
4. Schedule assembly.
5. Notify product line of delivery date.
6. Keep product line advised of delivery delays.
7. Make delivery directly to person requesting modules.
8. Return model with delivery.

**dec****INTEROFFICE  
MEMORANDUM***Ken Geld  
sent copy***DATE** April 26, 1966**SUBJECT****TO** ~~Ken Olsen~~**FROM** Jack MacKeen

In line with your recent request for suggestions, I have two.

1. The first is to expand the company magazine On Line to include semi-technical articles aimed at the production people and trying to explain the world in which our products are used, i.e. computers, their uses, man-machine interfacing. An example of what I have in mind is an article in Business Automation of November 1965. I am enclosing a copy of the article for your information. The article probably would need to be adapted slightly to reference it to what Digital Equipment does, but the idea is to show these people that the products which they make and the projects on which they work are in use in the outside world and what kinds of use and how important are the uses of these products. The particular article which I cite I think is pertinent, because it not only mentions the joss system, but shows a picture of one of our PDP-6 computers with the joss console.
2. I believe it would be of great benefit to most of the engineering staff in our company and to some production and technician people if we would have a seminar on value engineering. I think there is a great need to make everybody more fully aware of cost consciousness, how we could save costs, things we can do to provide better products, and still use cheaper components.

JM/ds

*Jack MacKeen*



# INTEROFFICE MEMORANDUM

DATE April 25, 1966

SUBJECT

TO

Ken Olsen ✓  
Harry Mann  
Stan Olsen  
Win Hindle  
Nick Mazzaresse  
Jack Shields

FROM Ted Johnson

This memo from Robin Frith outlines very well the current activity and problem areas in Australia.

It points out the depth and resourcefulness of our people there. Robin Frith is pointing in the right directions (modules, et al).

Please review the attached, including Ron Smart's recent budget submission. This should help in coordinating a realistic program for Australia.

TJ/mr

Attachment



INTEROFFICE  
MEMORANDUM

*Ted to Leo*

*cc. Stan O.  
W. Huddle  
N. Mazz  
J. Shields*

SUBJECT:

DATE: 4th April, 1966.

TO: Ron

FROM: Robin

Well, how is life in the big smoke? I hope you and the family are enjoying yourselves.

As you have probably gathered, life has been a little hectic lately. Sorry I have not written before now. Jan's Friday reports have no doubt kept you up to date on most of the events, but I will just fill you in on a few details.

*STAN*

The module seminars in Sydney went off quite well, but we have not had very much feedback at this stage, mainly due to a lack of follow-up on my part. They have helped to make our name known, and I guess we can expect some delayed effect later in the year. Our response to the Melbourne seminar invitations has been nearly as good as the Sydney one, and we can expect an overflowing house on 15th April.

Modules and special systems orders have gone much as expected. We are working on the AAEC Laben punchout system, have an order from Phil Souter for his 1620 interface, and expect an order for John Cogill's interface shortly. The AIS heat treatment order has passed Neil Durman, and is with their ordering people, and Dick Lang has all his modules for the punched tape control. Dave Harvey's modules now have to go to public tender, so we can expect a delay in that. Two Logic Labs for Perth Tech are now in the final stage, our tender, we think, having been accepted, and tenders have closed for the North Sydney Tech logic system. ATL intend to order modules for digital multiplexers for their system very shortly, and there is a good chance they will get approval to build an experimental PDP-8 system soon. That is about all on the module side, I think.

*X Special Systems*

*NICK*

We were, of course, very pleased to receive those two PDP-8 orders. John Cockram is a good bloke, and a knowledgeable computer man. He should be a valuable ally in times to come. John Parry too, with Peter Ellis, should be a good customer. Peter has stated that he will be using our modules from now on, so we can expect some good orders in that line.

Nev Stephenson's order is with Jack Best at Uni of N.S.W, so we should have it before long.

Dave Dewhurst has now placed orders for all his peripherals, and a Logic Lab as well. What is happening about the machine for the Computer Conference? Dave should get the next machine delivered to Australia after DSIR.

Ron Smart.

4th April, 1966.

BHP are very happy with the PDP-5, now using all PDP-8 software. Peter is spending a couple of days with them this week, to handle queries. They are now ready to add on peripherals, which include an 8 channel multiplexer, and digital input and output control for their analog machine. They feel they have a bargain. What is happening about the finance for this?

So much for customers. What about potentials? Those two large old-timers in Melbourne are really coming to a head. George and Ralph Lee met the committee of the Stockex last week and presented them with a written report on their recommendations. We have seen part of it and it is all ours. George and Ralph are about 95% and 70% confident that it will go ahead now. The members have asked for a report on the number of subscribers wishing to use the enquiry system, so it looks good.

Competition for ARL is IBM and CDC. Our chances are not as good as before, but still may have our nose in front. Much will depend on our proposal over the next few weeks, and the backup from over your way. We feel pretty much out on a limb at the moment.

*V. SHIELDS*  
So much for the bright side of things. Over the last two months I have installed three machines, and have four more to install over the next three months. Each one of these installations takes at least a week from my time, with programming and hardware tutorials and acceptance. With four special systems to design and get constructed, and calls on our hottest of hot prospects, my time is more than fully taken up. This leaves no time for field service, or for calling on existing or new prospects. This latter point is very important, as it means that most of your work over the last twelve months is being wasted, and we will most certainly suffer a major slump in the latter half of this year and early next year.

With Peter in Perth until well into June, it would appear that we must add to our staff as soon as possible. If it is to be a field service type, now is the opportune moment as he can be blooded on the next few PDP-8's. If he is to be a sales type (computer), he will give me much more time to concentrate on modules and providing service to our existing customers.

Providing we can get over April (financially), we should be able to pay his salary out of DEA income, without bothering Maynard at all (that is, providing we do not have to pay back Uni N.S.W. PDP-8). Do you have anyone in mind to fill the position, assuming your answer is in the affirmative? The only person I have in mind is Peter Main (resume attached). He may not be immediately available as he is still with AWA, but we can try.

Ron Smart.

4th April, 1966.

I feel we should look for a man equivalent to Canada's Bill McGregor; this is, without a professional qualification, but with plenty of experience in the maintenance and production of equipment. His work would include:

Nick?

- (a) Maintenance of the PDP-7's and -8's on the eastern coast.
- (b) Construction of special systems - i.e. take our design sketches and turn them into the finished article, enlisting outside labour where necessary.
- (c) The checkout of these systems, and installation in the customers' premises.
- (d) Using the test equipment presently in Perth, the repair of all modules, including the PDP-6 spares.

One person comes to mind immediately, and that is Peter Ellis, but I feel he is more value to us in his present position. I know a person in Melbourne that fills this category, but he may not be willing to leave that city. I will, however, sound his feelings on this matter.

Could you please let me have your reply to this, no matter how brief, as soon as you can manage it?

*Pete Abain may well be your hardware/software man for  
A.R.L.*

RPF.JD1350  
Encl.

*Regards  
Robin*

DIGITAL X  
DIGITAL NYO  
MTI147 0122 WRU  
DIGITAL NYO  
WRU  
DIGITAL NYO

*Ted. To See.*

DIGITAL AA20740

AUS654  
13.4.66

TO RON SMART  
FROM ROBIN FRITH

*Mike's message was?  
why not wait till you know about show etc.*

*ALL FIXED NOW.*

1. YOUR NOTE WITH REFERENCE TO THE SHOW MACHINE AND FAIRFAX HAS ARRIVED TOO LATE.
2. I DONT FEEL WE CAN ASK FAIRFAX FOR THE USE OF THEIR MACHINE FOR THE SHOW, WHICH IS WHAT YOUR NOTE AMOUNTS TO. IF I HAD BEEN KEPT INFORMED OF WHAT YOU WERE PLANNING, WE WOULD NOT HAVE LET THEM HAVE THE EARLIER DELIVERY DATE, BUT WOULD HAVE USED THEIR MACHINE AT THE SHOW AND LET THEM TAKE DELIVERY OF IT AFTERWARDS.
3. IT WOULD APPEZR THAT THE ONLY POSSIBILITIES NOW ARE
  - A. TO SEND OUT A PROCESSOR AND 189 MODULES, AND POSSIBLY ALL THE PARTS AND WIRING LIST FOR A 34D CONTROL
  - OR B. WE USE THE UNSW MACHINE AND PAY THEM FOR IT.

*they would have to know to get input.*

I HAVE NOT ANY TIME TO DO WORK ON A MACHINE OUT HERE, BUT IF THERE IS NO ALTERNATIVE, I SUPPOSE WE WILL JUST HAVE TO D IT.

4. REFERENCE OUR STAFF POSITION. LAST MONTH WE BOOKED 56K OF ORDERS AND TO DATE WE HAVE 30K THRS MONTH. THIS MEANS THAT WITHOUT ANY INCREASED EXPENDITURE, AND WITHOUT ANY MORE ORDERS, DEA IS SELF SUFFICIENT IN FUNDS, BUT NOT IN MANPOWER. WE ARE COMMITTED TO MORE LOCK THAN WE HAVE MAN TO DO IT. I HOPE YOU AND MAYNARD WILL TAKE IMMEDIATE ACTION TO CORRECT THE SITUATION. I PERSONALLY WOULD APPRECIATE SOME IDEA OF YOUR PLANS BY THE END OF THE WEEK.
5. AT THIS LATE STAGE I GUESS WE NEED A PERSON VERY FAMILIAR WITH DEC PRODUCTS. AN UNTRAINED PERSON WOULD PROBABLY BE MORE TROUBLE THAN HE IS WORTH.
6. WE SHOULD KNOW WHETHER STOCKEX IS TO GO AHEAD SOMETIME NEXT MONTH. ALL IS PROCEEDING VERY FAVOURABLY. PROGRAMMING EFFORT WOULD NOT BE REQUIRED UNTIL EARLY 1967. HARDWARE REQUIRED ABOUT MID 67.
7. I QUERIED STAN OLSEN ABOUT MODULE STOCK IN AUSTRALIA ABOUT 2 MONTHS AGO. WE ARE WASTING OUR TIME/GIVING SEMINARS UNTIL WE CAN OFFER BETTER SERVICE, AND DEVOTE A LITTLE MORE TIME TO FOLLOW UP.
8. SORRY TO SOUND OFF, BUT IT IS ABOUT TIME PEOPLE WERE MADE AWARE OF THE FACTS.

*PDP-9 by the*

*-Robin*

BT, AND CHEERS



ALSO

MIN PLS

MSG 1524 4/21/66  
TO ROBIN FRITH  
FROM RON SMART

RECEIVED  
1966 APR 21 PM 4:45  
DIGITAL EQUIPMENT CORP.  
SALES DEPARTMENT

1. I AM WORKING ON A FIELD SERVICE GUY FOR SYDNEY TO LEAVE YOU MORE SELLING TIME. HE SHOULD ALSO HAVE SOFTWARE CAPABILITY - SOME ONE LIKE ROBIN VOWELS. WOULD BE GOOD. WILL TRY TO FILL YOU IN BY LETTER

2. I HAVE MELBOURNE 8 IN TIME FOR SHOW, JUST. TABLE TOP 8, 34D WITH RMS03. LYING ON TABLE, 189 TEMPORARY REPLACEMENT FOR DAVES PRPER A/D.

LARRY'S ANSWERS FOR THE PROPOSAL SHOULD GO TOMORROW PRESUMABLY THE EXTRA DELAY WON'T WORRY YOU. I CERTAINLY HOPE NOT RETURNING TO NEW YORK TONIGHT 4/21

GET SOME SLEEP THIS WEEKEND

END+  
DIGITAL AA20740  
DIGITAL MAYN

# AUSTRALIAN BUDGET

Report of  
J.H. Smith

	4th Apr. - June '66	1st July - Sept 66	2nd	3rd	4th
od.	\$5k	10	15	20	25k
5/8	\$60k	40	70	80	100
7/9		120 (mult. stakes)		40	60
6				100	50
Ltd 3.			40		
<del>Public</del>					
<b>Total</b>	<b>\$65k</b>	<b>170</b>	<b>125</b>	<b>240</b>	<b>235</b>

These are fairly conservative (1970-1975)

Senior Salaries	\$2.2k (13)	3.0 <del>2.5</del> (2)	3.0 2.9 (2)	3.5 (25)	4.0 (25)
FS Salaries	\$2.7k (13)	2.4 2.9 (2)	2.4 (2)	3.2 (22)	3.6 (20)
Elemental Salaries	.7k (1)	.8k (1)	.8k (1)	.8k (1)	1.5 (1)
expenses	6.5	6.7	6.7	7.7	7.8
<b>Total</b>	<b>\$12.1k</b>	<b>12.9</b>	<b>12.9</b>	<b>15.8</b>	<b>17.0</b>

Public Service Income	\$ 3.6	\$ 4.0	\$ 4.0	\$ 5.0	\$ 5.0
-----------------------	--------	--------	--------	--------	--------

Bill F.

OW - ZAT !!

Row

(Call me in NYO if there are queries. I'll call if I find any errors)

# AUSTRALIAN BUDGET (CONTINUED)

## Expense Break down

	Final		July 66			Final
	<u>4th</u>		<u>1st.</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>
Rent	1400		1400	1400	1600	1600
Trouse + A. com	2000		2000	2000	2400	2400
Tax	1200		1300	1400	1600	1600
Supplies	300		300	300	400	400
Rep - Assets	150		170	170	200	200
Sales Prom	150		150	150	150	150
Advert.	50		100	100	100	100
Taxes	-		-	-	-	-
Prof Service	200		300	200	300	300
(night - day)	500		500	500	500	500
Other	500		500	500	500	500
<b>Total</b>	<b><u>6450</u></b>		<b><u>6720</u></b>	<b><u>6720</u></b>	<b><u>7750</u></b>	<b><u>7750</u></b>

\* Night entry on literature can be quite high.

## Membership Allocation

Mod.	.2		.3		<del>.4</del>		.5		.6	
5/8	.4	(.4)	0.9	(.8)	.8	(.9)	.9	(.9)	.9	(.9)
7/9	.3	(.3)	.6	(.2)	.5	(.1)	.6	(.8)	.7	(.6)
6	*.8	(1)	2	(1)	.2	(1)	.3	(1)	.3	(1)
Link 8	0		0		.1		0		0	
<b>Total</b>	<b><u>1.7</u></b>	<b><u>(1.7)</u></b>	<b><u>2</u></b>	<b><u>(2)</u></b>	<b>2</b>	<b>(2)</b>	<b>2.3</b>	<b>(2.7)</b>	<b>2.5</b>	<b>(2.5)</b>
	S.	P	S.	P	S.	P	S.	P	S.	P

\* Peter wait writing complete

NNNN+  
DIGITAL MAYN

WESTOVER COPE  
O  
ITT +  
DIGITAL MAYN

DIGITAL READING

18.4.66  
MSG NO 265  
TO ELSA CARLSON  
FROM HILARY CHEEKE (JOHN LENG'S SECRETARY)

WE HAVE INFORMED KEN OLSEN THAT MR. NASH, DIRECTOR OF  
AUTOMATION, PLESSEY CO. WILL VISIT HIM AND WIN HINDLE  
ON WEDNESDAY 27 APRIL AT MAYNARD.  
PLEASE COULD YOU CHECK THAT THIS DATE IS  
CONVENIENT AND LET ME KNOW. I HAVE TO RING  
MR NASH TODAY OR TOMORROW TO CONFIRM.  
THANK YOU.

RECEIVED  
1966 APR 20 AM 8:07  
DIGITAL EQUIPMENT CORP.  
SALES DEPARTMENT



# INTEROFFICE MEMORANDUM

DATE April 15, 1966

SUBJECT Some Notes on French Market Conditions for DEC

TO Ted Johnson FROM Jon Fadiman

CC: Ken Olsen ✓  
Stan Olsen  
Nick Mazzaresse

By virtue of the work of Equipement Digital during the past year, DEC now has a firm foothold on the French market for small computers. Complete records are available from Bernard Haus, but in general it is clear that we have one large PDP-5 system installed in Paris and four other PDP-8's already installed. We have firm orders for three more large PDP-8 systems and one PDP-7 system. Sale of at least two more PDP-8's, a LINC-8, and another PDP-7 seem almost certain in the very near future. We have \$150,000 worth of memory test equipment installed in Paris and another \$50,000 on order for a second customer.

The advantages for our company's selling in France are the following:

1. There is a large potential market. France ranks third in Europe, next to England and Germany with respect to computers installed. There is at present a large military budget available, a considerable fraction of which is bound to go toward computer equipment for such government military establishments as Saclay. In addition there have been large grants given to French universities such as Institut Blaise Pascal, Orsay, Universite de Paris, etc. for the installation of computer equipment. DeGaulle's ruling philosophy, although infuriating to Americans and possibly damaging to the interests of world peace, have nevertheless pushed France ahead both economically and scientifically. There is definitely money available both within private industry and within the Government for the purchase of computer equipment for scientific research and for plant modernization. France is trying to push herself ahead as a first rate power, and in so doing, she is bound to spend money on computers.
2. French sales are an important base for us for other European sales. Our first computer sale to CERN in Switzerland has come through money available in Orsay in France and the French sale to the Institut du Radium at Orsay was a big help in getting the first PDP-8 into CERN. A continued sales effort in France will have its effect upon our ability to sell additional computers

to CERN. The \$250,000 module order for CIR, Switzerland, came through a French customer. Our efforts in Italy, which inspite of the fact that we have no sales office there and only a minimum amount of sales money was spent, have been quite satisfactory. We have one PDP-8 installed there, two more on order, and a very good probability of at least two more large PDP-8 systems and a PDP-7 system. The fact that we have made a success in France has been very persuasive to the Italian research university people who are purchasing our computers there. In the future, we will be investigating the Belgium market and then later on possibly the Spanish market. Both of these countries will look toward our success in France to judge for themselves whether or not they wish to purchase our products.

3. Our competitive position with respect to the PDP-8 is excellent. We have essentially no competition whatsoever from any French manufacturers as there is no small-fast computer available at the PDP-8 price. Although Computer Control Company is just setting up a Paris Office, they have as yet had very little success with respect to French sales. There is one 3C computer installed in Paris that I know of. SDS has licensed the French firm CITEC, a subsidiary of CSF, to manufacture their computers. At the present time, however, they are having definite manufacturing difficulties, and I am told by rumor that the SDS computers manufactured in the U. S. work fine but those manufactured in France do not work. The French in general have no confidence in English computers and we are experiencing almost no competition from them. Our position with respect to the PDP-7 is not quite as favorable. The CAE510 is a direct competitor of the PDP-7. It is not as flexible a machine, it is much slower, and it is somewhat more expensive; nevertheless, it is able to do many of the same jobs as the PDP-7. Thus, the French Government can force an organization to buy a French product and thus to buy a CAE510 instead of a PDP-7. However, it appears that we are now becoming more successful with the PDP-7. When large memory configurations are required, the PDP-7 is no longer competitive with either the CAE510 or the IBM1800 or the CDC1700 because of our high memory prices. This condition will certainly be remedied with the advent of the PDP-9. With respect to large computers, we have made no attempt in France to sell the PDP-6. The competition here would be largely from CDC which is extremely well entrenched in France. However, for some reason, there do not seem to be many CDC1700's on order and CDC has been more successful in the larger computer area.

With respect to modules, our only competition is Transco, the French manufacturer of Phillips. However, our modules are far more reliable, much easier to use, faster, and only somewhat more expensive. The problem is mostly to educate French users on the advisability of buying modules rather than making their own.

4. We are fortunate to have M. Aruand de Vitry as Gérant of the French Company. In no other foreign country do we have the guidance and help of such a powerful and influential man.

#### DIFFICULTIES IN SELLING IN FRANCE:

1. It is expensive. Our French Sales Manager is our highest paid Regional Manager, and salary levels particularly on the executive level are fully as high as the U. S. The cost of doing business in Paris is extremely high, higher than any city in the world. Yet it is necessary to be in Paris since that is the center of the electronics industry for all of France. Rents are expensive unless a considerable amount of key money is put down (perhaps \$5,000 minimum), it is necessary to figure an annual rate of about \$10,000 per year.
2. There is definite Government opposition to the sales of American computers in France. Unlike the situation in Italy, where the Italian Government is perfectly content to provide money for the purchase of American equipment; the French Government because of its chauvinism and protectionary policies would like to force research establishments dependent upon government money to buy French computers rather than American computers. However, this is not a hard and fast rule and if the potential user can prove that no French equipment is available at a somewhat equivalent price, money will be granted for the purchase of American equipment. Much of the situation depends upon getting to know the right people so as to get the purchases approved. Bernard Haus is trying very hard to get to know these people and he is definitely having success. Private industry in general is not affected by these

government feelings and will definitely buy American equipment. Although there is anti-American feeling on the political level, the actual computer users know that American equipment is good and reliable and from an engineering point of view are predisposed towards buying American equipment. The only stipulations are that the French people buying the equipment wish to deal with other French people and wish to be assured of continuous first-rate service. Our French Office should be able to provide both the sales contact work and field service work. Furthermore, companies in general wish to purchase directly from a French company in French Francs and not worry about the importing problems or currency exchange problems. As long as these conditions are fulfilled, there is a large market in France for DEC equipment. We will of course lose a few sales because of the "Buy French" Government feelings, just as we have lost sales in England because of the "Buy English" Government feeling. However, there are plenty more sales to be made and this should not cripple our marketing effort in France.

3. At the present time, Equipement Digital is an independent company and not a subsidiary of DEC because of the fact that so far we have not been successful in getting exchange control provisions which are required in order to form a French subsidiary. This is in no way limiting our French marketing effort and to the customer it of course makes no difference whether Equipement Digital is independent or a subsidiary. The only difference it makes to us at DEC is whether or not we can repatriate the profits back to the U. S. of course, we have a considerable time available before profits will accrue that they will have to be repatriated since we can send back to the U. S. money up to the amount lent to Equipement Digital. With the change in ministry, it appears that DeBraine will be considerably more favorably inclined than was d'Estaing toward our application to become a subsidiary. Indeed, I have heard that certain applications for American subsidiaries are now being approved; therefore, this is not a serious disadvantage.



4. There has in the past been some pressure by the American State Department of the U. S. Department of Commerce to prevent export licenses for advanced computers to France due to the problem of French violation of the Nuclear Ban Treaty. Brad Towle would have more up-to-date information on this problem than I do, but it appears that our computer shipments are not being blocked at the present time and that there is almost zero likelihood that they will be blocked in the future.

CONCLUSION

The orders which have been placed with Equipement Digital during the past year and the future orders which appear to be coming fully justify a continued sales effort in France. Although selling is somewhat harder in France, than in England, Germany, or Italy, the potential market is sufficiently large so that a properly run French company should be able to show a profit within the coming year. Any attempt to greatly diminish our sales effort in France besides preventing us from making money in France, would have severe repercussions to DEC sales results throughout Europe.

*Jonathan R. Fordman*



# INTEROFFICE MEMORANDUM

DATE **April 13, 1966**

SUBJECT **COMPUTER MARKET**

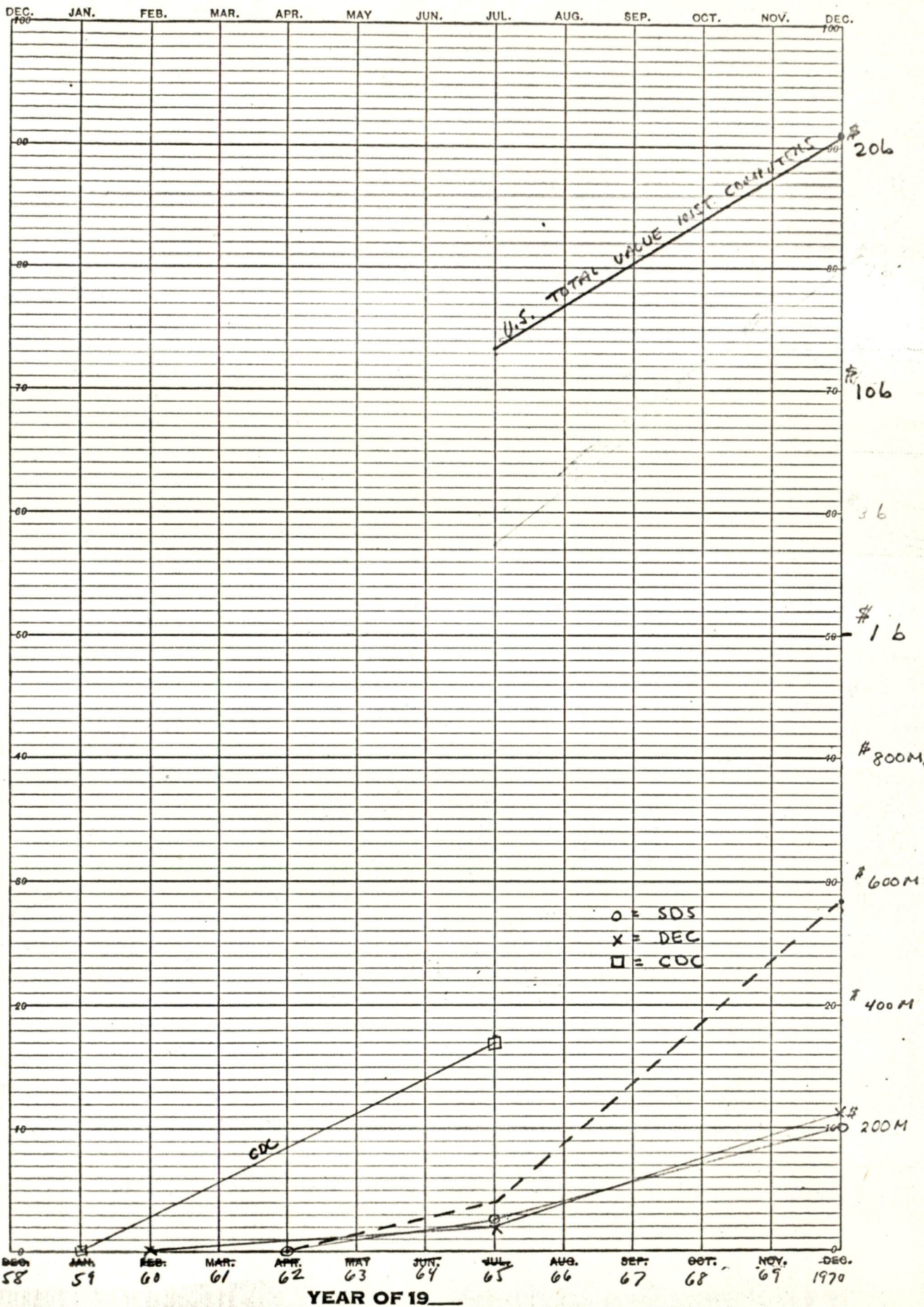
TO **Nick Mazzaresse  
Ken Olsen  
Win Hindle  
Harry Mann**

FROM **Ted Johnson**

The article on SDS in the March 21, 1966 EDP Weekly is interesting. If Max Polevsky's statement that SDS has produced \$50M of computer equipment means a total since time zero for them, I calculate we have produced about \$40M. The attached graph shows their projection (based on this assumption) versus our projection. Of course, if he is implying \$50M production rate per year, against about \$2 billion annual rate total per year all U.S. Manufacturers. Actually, according to the ADL report, the annual net rate in 1970 is expected to be \$3 billion and the total installed value \$21 billion (currently \$13.3 billion). The dotted line shows what Max implies. The solid line shows what I think he really is planning. Our solid line shows what we are planning at 30% increase per year.

TJ/mr  
Attachment

# VALUE OF COMPUTERS PRODUCED (CUMULATIVE)



CODEX BOOK COMPANY, INC. NORWOOD, MASSACHUSETTS. PRINTED IN U.S.A.

NO. 3241. ONE YEAR BY MONTHS X 100 DIVISIONS.

COMPUTER CONTROL

<u>YEAR</u>	<u>NET SALES</u>	<u>NET PROFIT</u>
1956	700,000	29,860
1957	1,200,954	96,107
1958	1,342,478	41,554
1959 (3/4 yr.)	1,838,577	142,676
1960	3,084,229	(18,927)
1961	4,811,921	42,880
1962	8,699,333	289,993
1963	11,081,415	436,076
1964	19,049,683	525,907
1965 (1/2 yr.)	11,606,779	140,645
full year approx.	27,000,000	

CONTROL DATA

1962	41,034,009	1,542,022
1963	63,111,401	3,064,751
1964	121,439,690	6,072,921
1965	160,473,162	7,912,961

SDS

1963	7,721,537	1,310,654
1964	20,486,789	2,179,399
1965 (1/2 yr.)	22,053,450	1,390,445



# INTEROFFICE MEMORANDUM

DATE April 12, 1966

SUBJECT XEROX MACHINE

TO Elsa Carlson

FROM <sup>Bill</sup>~~Bill~~ Farnham

Effective this date, we have taken the following action concerning the Xerox machine:

1. Placed a notice indicating who can use the machine, how much it costs and that the usage log must be signed.
2. Initiated action with Loren Prentice to install an electrical switch box that will allow us to pad-lock the machine at night.
3. We will review the usage log, and any flagrant violators will be reported to the supervisor of the appropriate department.

WHF:ed

DEC  
INTEROFFICE  
MEMORANDUM

DATE April 12, 1966

SUBJECT Engineering Budget

TO Ken Olsen ✓ Nick Mazzaresse  
Stan Olsen John Jones  
Win Hindle Mike Ford  
Pat Greene Loren Prentice  
Mort Ruderman Dick Best  
Gordon Bell

FROM Harry S. Mann

Attached is a form that I suggest we use for preparing the details of our Engineering Budget Proposals for the next meeting of the Works Committee. You will recall that at our meeting on April 11, Ken suggested that we summarize all of our engineering plans for all product lines, total up the dollars required, and be prepared to discuss the whole subject in about two weeks.

Certain larger projects were outlined at the meeting on April 11 and other projects now in the works have been reported on and discussed from time to time in recent months. In order to pool all of these programs together on a uniform basis, from the point of view of man power needs and expected dollar expenditures, it would be helpful for everyone to have a uniform method of presentation. In addition to specific or discrete large projects, there is a continuing need for engineering support in general to take care of day-to-day requirements. We need to include in our evaluations the total dollar estimates for this kind of work for each product line.

It is suggested, therefore, that a separate sheet be prepared for each major project and one sheet to cover general support and all other small projects. If these forms can be completed by the product lines and submitted to the Accounting Department prior to April 26, 1966, we will take responsibility to add up the individual sheets and summarize them for all product lines. This approach will provide the detailed support for the engineering budget that was recently submitted by the product managers for the Fiscal Year 1967. In the event that certain projects are dropped or modified at the upcoming meeting, we will then have the basis for changing the 1967 budget accordingly.

  
Harry S. Mann

HSM/clw

Attachment

## INSTRUCTIONS FOR USE OF FORM

### Product Line:

1. The Product Line submitting the form should be shown under "Product Line."
2. A brief description of the project or work to be accomplished should be shown in the "Project Description" section.
3. The objectives which we expect to achieve from the project, including comments on returns on investment, should be included under the heading "Objectives."

### Cost Data:

1. Estimates of material, direct labor, and overhead to be expended each quarter in each of the major engineering areas should be indicated.
2. Space has been provided for the current quarter which is the last quarter of fiscal 1966; likewise, data for each quarter of fiscal 1967 should be provided.
3. If a project is expected to run beyond 1967, it would be desirable to give estimated cost for the future period under the column marked "Later." This will probably apply to very few special projects.
4. Inasmuch as we budget engineering expense in six areas, we have provided space for those in the form.
  - a. Produce Line Managers should include costs to be incurred in the product line's own section.
  - b. In like manner, the costs to be incurred in the product line's programming should be separately located in the space provided when applicable.
  - c. Space has also been provided to record all services to be obtained from the Model Shop, Drafting, Mechanical Engineering, and Printed Circuit Design.

### Man Power:

Space has been provided for indicating man months of effort in each of the overhead centers for each quarter. Any comments concerning additional man power required, that is not currently available, could be commented on in the form or as a footnote to it.







# INTEROFFICE MEMORANDUM

**DATE** April 8, 1966

**SUBJECT** Module Repair - Large Computers

**TO** Ken Olsen

**FROM** Win Hindle

Module repairs in Large Computer Production have been running at about 60 modules per week. The cycle time for a module going through repair is also one week and consequently the backlog is 60 modules and will probably remain at about that level (these are primarily large modules and the inventory cost for 60 totals \$4,000).

In our production effort, repair modules have priority over new modules in order to keep down the backlog.

In my opinion the module repair for PDP-6's is being handled very well and presents no problems of inventory build-up.

1466

KHO



# INTEROFFICE MEMORANDUM

DATE April 7, 1966

SUBJECT FOREIGN PATENTS

TO John Leng  
Gerry Moore  
Bernard Haus  
Klaus Kyris  
Denny Doyle  
Ron Smart

FROM Ted Johnson

Now that we have made subsequent inroads into foreign markets, the likelihood of hearing about potential patent problems is liable to increase somewhat. The following procedure should be followed if you are contacted by any organization expressing concern and a possible foreign patent infringement embodied in any of our equipment.

1. Obtain the number of the patent.
2. If the problem concerns an organization indicating that we are violating their patent, obtain the name and address of their Patent Attorney involved.
3. Obtain any information you can regarding the nature of the patent and a specific piece of equipment, or part of equipment, which is considered to possibly represent an infringement.
4. Send the above information to my attention immediately and inform anybody concerned that we will look into the matter.

Upon receipt of the above information, I will give this to Bob Cesari, our Patent Attorney, who will in most cases look into the details of the above patent and send a letter to the Patent Attorney above, indicating that our company is looking into the problem. Our patent firm has correspondent authorities in each of the countries and they will be able to add any information required.

Do not get involved any further in this problem and, above all, do not, under any circumstances, independently act to contact a Patent Attorney to represent us or look into the problem.

We are examining this problem in some detail and our patent firm has been with us throughout our history and is thoroughly knowledgeable about products and risk in this area.

In general, our type of equipment is extremely complex and difficult to patent in any meaningful way but we are continually on the alert to see that we are not bothered in the conduct of our business by people claiming that we have violated their own device design.

TJ/mr

CC: Ken Olsen  
Bob Cesari  
Bill Farnham



## INTEROFFICE MEMORANDUM

DATE April 4, 1966

SUBJECT CHANGE IN GROUP INSURANCE PLAN - ENROLLMENT

TO K. H. Olsen

FROM Bob Lassen

Our group insurance change and enrollment was a complete success. On the surface, this looks like a relatively routine problem; however, much blood and sweat went into the administration and communication with our employees.

Fred Mariani, Paul Chambers, Jean Hanson, Jo Reilly, and Ginny Saunders did a remarkable job from start to finish. They should be commended for their efforts in accomplishing this task.

The cooperation and continued efforts of these people with respect to Personnel related assignments is most gratifying.

MEMO

To: Ken Olsen

From: Dick Ward

Subject: The Function of the Technical Writing and Editing Section

## The Function of the Technical Writing and Editing Section

Within the present organization of the Company, the Technical Writing and Editing Section primarily must service the Product Line (profit) Groups. All writing, editing and literature production must be defined in terms of this service.

To accomplish this primary objective, all members of the section must have a professional attitude and dedication to do the best possible job within the varying limitations and definitions of their work (budgetary, time and reschedules, changes in emphasis, etc.) that of necessity originate external to the section.

This section has the capability to produce the following types of technical literature:

- Maintenance Manuals for all equipments
- Software documentation
- Proposals and technical reports.

In addition, the section can give counsel and write any defined item, from Company Standards and Procedures Manuals to complete aid in compiling technical articles and books.

Effective section participation for the Company can best be realized when it -

1. Operates directly with the Product Line Manager with a responsibility similar to that of a vendor.
2. Exercises direct control over services required to produce our product such as technical illustrating and quality control of printing technical literature.
3. Establishes and exercises editorial authority over formats and standards for technical literature.
4. Controls vendor services for quality, consistency and delivery.
5. Provides the best combination of skilled in-house and vendor personnel to meet schedules without increasing the overhead factor, and to get the best product for the best price within the definition of the job.

*From  
Roland Brisvert*

SUMMARY T.U. 79 PROJECT

WHY?

- a. Reduce the number of units used by the company to one (1) basic unit.
- b. Control total price structure for competitive reasons.
- c. Status in competition.
- d. Control of reliability and mean time to failure.
- e. Control of spare parts.
- f. MARKETING-IBM, CDC, Have single capstans ready to go. SDS has already announced theirs. You will recall, CDC's marketing people had the peripheral division develop a single capstan tape drive because they feel it is a must for sales in the future.
- g. Field Service will have the equipment to be trained on and the backup internally rather than have to have a transport representative as well at a customer site.
- h. We will have a support engineering group which will train and work with Field Service on simulation of customer problems.
- i. DOLLARS - We can buy the D3030 for \$6,600.00 . Below is a summary of our cost without overhead.

Cabinet	250
Motors	500
Tape Deck	300
Electronics	300
Power Supplies	150
Heads	500
Assembly & Test	250
R & D	400
	<hr/>
	\$ 2,650.

XERO COPY XERO COPY XERO COPY XERO COPY

NOTE: Even going to the extreme of dividing D3030 cost by three, it still says we can make money on this product by producing a transport ourselves.

j. Future Variations of Basic Unit

- a. Custom interface and logic for future controllers.
- b. Incorporation of incremental mode as well as normal operations.
  - aa. Card to Tape
  - bb. Slow A-D-Tape
  - cc. Off line (data gather)/on line process.
  - dd. Paper Tape to Mag Tape
  - ee. Tape to Printer
  - ff. Tape to Plotter

GENERALLY THIS MEANS DATA RETRIEVAL AND PROCESSING AS OFF/ON LINE FUNCTIONS FOR SCIENTIFIC USERS.

- c. Other variations are primarily in the basic speed specifications of the transport.

k. Technical Considerations:

- a. Single capstan vs pinch roller
- b. Rewind in column vs out of the column.
- c. Minimum pot type adjustments vs crescent wrench and allen wrench mechanical adjustments (also far fewer adjustments and frequency, far less.)
- d. No possibility of electronics failure stretching tape such as simultaneous forward and reverse commands.
- e. Minimum oxide contact with metal surfaces.
- f. Self diagnosing of start stop times drifting out of tolerance. (Who else does this?)
- g. Self diagnosing of speed control.
- h. Give the programmer much more information about the tape position for decision making.



WHAT? a. A 75 ips single capstan tape drive which is 570/545 buss compatible. IBM 7 channel and ASC II (9) Channel).

WHEN? Prototype Completed 10/3/66  
Testing Completed 12/5/66  
First 3 Production Units Tested 4/15/66  
Release to Sales o/a 4/15/66

COSTS: Development Phase \$69,000.00  
Three Production Units 60,000.00  
Support Engineering 30,000.00 year  
Estimated Selling Price 12,000.00

#### Manpower Required

Project Manager  
Project Engineer  
Logic Designer  
Circuit Designer  
Servo Designer  
(3) Electrical Technicians  
(1) Electrical Draftsman  
(2) Mechanical Engineers  
(2) Mechanical Draftsmen  
(1) Secretary

#### Capital Equipment

PDP-7  
57A/521  
Reel Motor and Brake Tester  
Environmental Test Chamber  
Capstan Servo Tester  
Magnetic Head Tester  
(3) Oscilloscopes  
4,000 square feet of working area  
(3) VOM meters  
(5) Offices and Associated Equipment



## INTEROFFICE MEMORANDUM

DATE 1 April 1966

SUBJECT Proposal for Reinstitution of Production in Canada

TO Stan Olsen  
Nick Mazarese  
Ted Johnson  
Ken Olsen

FROM Denny Doyle  
Jim Milton

### History

The Canadian Plant at Carleton Place was given approval to manufacture modules, mounting panels and power supplies. Because of the long delay and uncertain delivery from the Maynard plant for peripherals, the Canadian plant also produced these peripherals to satisfy the local demand. These peripherals included the high speed readers, punches, displays and calcomp plotter. As well, small PDP-8 interface systems were built.

In order to get a good measure of the efficiency of Canadian manufacture and also to relieve a chronic shortage of R210 modules, all production in Canada was stopped with the exception of the R210 program and the finishing of those jobs already started.

### Present Status

All raw material has been used up from stock in the Canadian plant and only the R210 modules are being produced.

All peripheral work is completed and of course no new jobs have been started.

The R210 program has been completely successful and present indications are that the requirements for the R210 production will reduce because R210 stock in Maynard is now at a normal level. As PDP-8 production picks up later this year, the R210 production requirement will only increase to present levels. This means that there will only be 3 days work per week for the present production staff in the Canadian plant.

### Proposal

1) Immediate resumption of the production of mounting panels and power supplies for the Canadian market.



# INTEROFFICE MEMORANDUM

DATE 1 April 1966

SUBJECT Proposal for Reinstitution of Production in Canada

TO Stan Olsen  
Nick Mazerese  
Ted Johnson  
Ken Olsen

FROM Denny Doyle  
Jim Milton

- 2) Serious investigation of the advantages of producing mounting panels and power supplies for commonwealth countries.
- 3) Resume the design and production of small interface systems for the PDP-8. The fact that we can offer this service to customers is an extremely powerful sales aid. These small systems can be hand made in Canada at a fraction of the cost of introducing it into the Maynard production line. The same man that makes up the drawings here actually installs and checks out these systems so administration costs are just about nil. If we are to pass this type of work to the Maynard plant, it will require one person just to administer these small jobs and act as project engineer.
- 4) Build standard peripherals for the whole company. It is still extremely difficult, if not impossible at the present time, to purchase reader and punch options for field installation from Maynard. If the Canadian plant were to make these products for the whole company and check them out, a big bottleneck would be removed. Customs is not a problem and it can be completely handled from this end. We would buy readers and punches directly from the suppliers and buy modules and mounting panels from stock.

## Summary

Production Managers at Maynard should look on the Canadian facility as an extension of their own plant for jobs that are:

- 1) Causing them trouble
- 2) Do not fit into the normal flow of large scale production
- 3) Where it is necessary to make a step function in production.

dec

INTEROFFICE  
MEMORANDUM

DATE 1 April 1966

SUBJECT Proposal for Reinstitution of Production in Canada

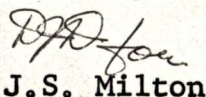
TO Stan Olsen  
Nick Mazerese  
Ted Johnson  
Ken Olsen

FROM Denny Doyle  
Jim Milton

Since the Canadian plant is small, we can respond very quickly\* to new problems and you will find us a tremendous asset to Digital as an international organization if we are given the opportunity to work with you.



D.J. Doyle



J.S. Milton


\*The injection of a small number of people into a facility such as the Canadian one will undoubtedly have a greater effect on relieving a problem area than would the injection of an equivalent number into the larger U.S. facility.

same

OPERATING AS A FOREIGN SUBSIDIARY

(A summary of the operational details and the problems of control)

Circulation:

- K. Olsen 
- H. Mann
- T. Johnson
- S. Olsen

By: D. Doyle  
Canada

MADE IN CANADA  
VICTORY  
HOWARD  
SMITH  
NOR

## 1) INTRODUCTION

DEC's foreign offices are operated as subsidiary companies and as such, are subject to the laws of the country in which they operate. The experience in Canada has been that compliance with these laws has forced the adoption of policies and administrative procedures which are incompatible with domestic procedures.

The essential difference is that a foreign operation must deal with the parent-company on a buy-sell basis, or on some other basis which can be measured accurately and judged realistically in the eyes of the foreign government's revenue authorities. In addition to the complexities of resale in accordance with the pertinent legislation, the routine operation of the company as such involves considerable administrative detail, none of which can be realistically handled from the U.S.

The purpose of this memorandum is to provide management with a better understanding of these problems, and to explore more efficient methods of control.

## 2) BASIC GROUND RULES

The primary concerns of the Canadian federal government are:

- a) that the buy-sell pricing structure is realistic enough to allow the Canadian company to produce a taxable income
- b) that import duties and sales taxes are collected on all equipment whether for our own use or for resale

The essential ground rule here is that prices charged to the Canadian company should be similar to those charged to our most favoured U.S. customer. It is interesting to note that for income tax purposes, the Canadian revenue authorities want to see the import price low, while for customs purposes, they want to see it high.\* The importance of a fixed and unquestionable policy on pricing is therefore obvious.

The primary concerns of the provincial government (Ontario) have to do with labour and social legislation, but like the federal government they do impose a sales tax and a corporation income tax of their own.

---

\* For our own purposes, we want to see it low since it reduces the amount of duty and sales taxes and therefore results in a lower price to the Canadian customer.

The next section will list the major elements of government legislation and the records which must be kept to accommodate them.

### 3) TAXATION

The following is a listing of the various levels of taxation:

#### 3.1 Corporation Tax

3.1.1 To Province of Ontario - 9%

3.1.2 To Government of Canada - 12% on profits under \$35,000  
- 41% on profits over \$35,000

#### 3.2 Federal Sales Tax - 11%

This applies to all sales and is computed on our duty-paid, imported price. It is payable to the federal government by the 15th of the month following the one for which it was collected. All of our sales invoices are subject to federal sales tax audit at the end of the year.

#### 3.3 Ontario Provincial Sales Tax - 5%

Similar to federal sales tax except that it must be remitted to the Ontario government.

#### 3.4 Employee Income Tax

Must be deducted from payroll and remitted to the federal government by 15th of following month. Earnings and tax statements are of course compiled on each employee and sent to the government and the employee at the end of the year.

#### 3.5 Local Municipal Tax and Business Tax

These items of taxation are relatively straight-forward and apply to our real estate and business operation.

### 4) MISCELLANEOUS GOVERNMENT LEGISLATION

#### 4.1 Workmen's Compensation

Administered by the province of Ontario. An assessment is made at the beginning of the year on a payroll estimate submitted by us. At the end of the year, an adjustment is made to bring our payments in line with our actual payroll. Payroll records are subject to audit at least once a year.

#### 4.2 Unemployment Insurance

This is compulsory for all employees earning less than \$5500/year and is paid partly by the employee and partly by the company. Payments are made by the purchase of unemployment insurance stamps from the local post office. These stamps are then affixed in a book which is maintained by us for each employee. Our payroll records are therefore audited by the Unemployment Insurance Commission (provincial body) at least once a year.

#### 4.3 Canada Pension Plan

This is a federal plan which is compulsory for all employees, and which is jointly paid for by the employee and the Company.

#### 4.4 Ontario Hospital Insurance

All hospital insurance in Ontario is controlled by this body. The John Hancock insurance plan is not legal in Ontario for this reason. To supplement this hospital insurance with medical and life insurance, we have a group policy provided by the Crown Life Insurance Company. (Rates are lower than U.S. rates).

#### 4.5 Labour Legislation

We find frequent contact with miscellaneous labour bodies concerned with minimum wages and working conditions, particularly in our production department.

### 5) THE SALES ADMINISTRATION FUNCTION

Because of the need to assume responsibility for importing our own goods, we must do our own sales administration. This includes the following functions:

- a) Customs clearing
- b) Operation of a bonded warehouse
- c) Inventory control accounting
- d) Writing quotations and acknowledging purchase orders
- e) Shipping and invoicing
- f) Collecting payment

Much friction and confusion has been caused by the insistence of the product line managers and the sales department that the sales administration function be essentially duplicated at Maynard for checking purposes. For example, every single purchase order received in Canada is being copied and sent to Maynard and the items correlated with the items ordered by us. Customer files are being built up in the U.S.



on every Canadian account in parallel with the Canadian files. This is clearly an inefficient method of controlling inventory and monitoring our markets, the two functions claimed to be served by the duplicate sales administration. The month-end reporting contains a great deal of raw data as well, certainly enough to perform the two functions mentioned.

#### 6) HOW TO ESTABLISH CONTROL

Control over the foreign subsidiaries is presently maintained by the Sales Manager using much the same framework as is used in the domestic field offices. The one variation concerns the production activity in Canada, which is under the control of the module Product Line Manager.

Control at present is being maintained largely on raw data as mentioned above, and is very effective in the areas which it covers. The one criticism here is that closer attention should be paid to our financial reporting system. It is a fact of a foreign subsidiary that the manager must deal with financial matters which cannot be monitored except by financial reporting and internal auditing. He has signing authority to the company bank account, he signs his employees' pay cheques, pays the corporation taxes, the sales taxes, and all of the various fringe benefits from the life insurance to unemployment insurance. The reality of the situation is that these are activities which no other district manager is responsible for, and the domestic reporting procedure is just not designed to control and monitor them. To control them at the raw data level, as is being done in the sales administration function, would be hopeless. The need for more effective reliance on financial reports is clearly obvious.

#### 7) MEASURE OF PROFITABILITY

The yardstick which is presently being used to measure profitability in the subsidiaries is cost of billings. Little fault can be found with this, since the primary function of the subsidiaries is to sell. And I think it is appreciated that a significant G & A factor is imposed on the foreign subsidiary by the expense of having its own accountant, the professional services of an auditor and other expenses which are not normal sales overhead expenses. For accounting purposes, it can be argued that this expense should not even be broken out separately as G & A but should go directly into sales overhead. There are two reasons for maintaining accounting purity:

- a) In the case of Canada, this G & A is spread over sales and production.
- b) Our sales to the Canadian Department of Defence have a profit-declaration clause in them. Their (DND's) recognizable elements of expense do not include large sales expenses and so it is to our advantage to remove from the sales

function all of the expenses that we can. For example, the writing of a technical proposal is recognizable as an engineering expense and on our books we record it as such. This means that every computer system is job-costed by us and sales expenses are low but engineering and field service expenses are high.

The above implies therefore, a double set of books, one for allowing Maynard to measure our cost of sales, and the other a "pure" type of accounting which reflects job profits and profits after taxes for each of the product lines.

The tax question raises another important question. The "Cost of Billing" yardstick may not be the one to use on foreign subsidiaries, since they will be subject to different tax rates than the U.S. parent-company.

#### 8) CONCLUSIONS AND RECOMMENDATIONS

This memorandum was intended to be informative rather than suggestive. In reviewing it however, the impression that one gets is that I am suggesting that a subsidiary does not fit well into the framework of a domestic sales office, from the point of view of control. The problem is how to give it access to the U.S. sales machine, allow it the freedom to be a "good citizen" in the eyes of the foreign government (and in Canada, this includes something more than a sales office) and still be profitable to the Corporation as a whole. Unfortunately, all of these aims are not compatible with the aims of the Sales Department and the Product Line Managers simultaneously.

The need for an overall Foreign Manager has been suggested by me before. Presently Canadian production is at the mercy of the product line managers and the tendency appears to be to use us to put out brush fires (e.g. the R210 program). This is a fair role to play, but it is still an "out-of-control" situation since it is probably an inefficient use of our plant and equipment in Canada. For the risks involved and the increase in overall sales, it is not realistic to expect either the Sales Manager or a Product Line Manager to promote foreign production. The creation of a new corporate body whose profits were derived only from foreign operations, however, (whether sales or production), would (I feel) clearly define the need for production on a global basis. Product line definitions would still exist but a new centre of responsibility for profit would be created.

The main purpose of this memo has been to describe that animal called "subsidiary" so that we might all do a better job of "house'breaking" it. Our understanding of the problems has improved a great deal over the past year, (and Ted has worked on data which was not well supplied by us). What we might now do is use a little imagination to come up with ways of capitalizing on our competitor's ignorance of international operations. And I could write an even longer memo than this on that topic!

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## REPORT ON DISC MODULE

### I. Definition

The disc module is a fixed disc, fixed head, rotating disc memory with the following features.

1. 14" IBM Oxide Disc (Presently see Section V)
2. Disc Speed - 1,200 RPM
3. Six (6) Head Pads with eight (8) Heads Per Pad
4. 44 Data Tracks, Two (2) Timing Tracks, Two (2) Spares
5. Track Spacing - .050, C to C
6. Capacity of 50,000 PDP-8 Words (approximately one-half million bits.)
7. NRZI Recording

### II. Disc Source

At the present time we are planning to use IBM, 14" discs from the IBM Disc Pack Machine. Availability of these discs is not good and if we are not able to obtain them, a secondary source must be found. There is always the possibility of buying plated discs from Data Disc at \$100.00 per disc as a short term measure or there is the possibility of having our own disc manufactured under the new technique which was developed by Steve Lambert and Customs Coating in Sherbourn, Massachusetts. This is a technique of laminating an oxide coated Mylar film to end epoxy substrate. Mr. Roger Plourde of Customs Coating has shown us prototype samples of this process which looked very good. However, at the present time, we have no agreement of any type with this man but we can make an agreement with him for \$1,000.00 to produce a limited number of prototypes to our exact specifications for dynamic testing and evaluation. If at the end of this testing program, these discs prove feasible, it will be possible for us to purchase discs for approximately \$10.00 each. We will also have to spend between \$500.00 and \$600.00 for a supply of oxide coated Mylar for Customs Coatings' use. This sum will purchase enough Mylar for two to three hundred discs after the process has been proven.

III. Schedule

Electronics

1. Diode Select Matrix Design
2. Diode Select Matrix Model
3. Diode Select Matrix Testing
4. Read Write Pre Amp Design
5. Read Write Pre Amp Model
6. Read Write Pre Amp Testing
7. Power Control and Timing Design
8. Power Control and Timing Model
9. Power Control and Timing Testing
10. Prototype Assembly
11. Prototype Testing
12. Release to Production

MARCH   APRIL   MAY   JUNE   JULY   AUG.

	MARCH	APRIL	MAY	JUNE	JULY	AUG.
1. Diode Select Matrix Design	XX					
2. Diode Select Matrix Model		XX				
3. Diode Select Matrix Testing			X			
4. Read Write Pre Amp Design	X	XXX				
5. Read Write Pre Amp Model		X	X			
6. Read Write Pre Amp Testing			XX			
7. Power Control and Timing Design		XX				
8. Power Control and Timing Model			XX			
9. Power Control and Timing Testing			XX			
10. Prototype Assembly				X		
11. Prototype Testing				XXX	XXXX	
12. Release to Production						X

Mechanical

1. System Configuration Design
2. System Configuration Sketch Drawings
3. System Configuration Prototype Manuf.
4. Head Mounting Design
5. Head Mounting Drawings
6. Head Mounting Prototype Manufacture
7. Head Mounting Testing
8. Cabling and Produceability Planning
9. Cabling and Produceability Drawings
10. Prototype Assembly
11. Prototype Testing
12. Release to Production

	MARCH	APRIL	MAY	JUNE	JULY	AUG.
1. System Configuration Design		XXX	XXXX			
2. System Configuration Sketch Drawings		X				
3. System Configuration Prototype Manuf.		XX	XXXX			
4. Head Mounting Design	XX	X				
5. Head Mounting Drawings		XX				
6. Head Mounting Prototype Manufacture			XX			
7. Head Mounting Testing			XX			
8. Cabling and Produceability Planning			XX	XX		
9. Cabling and Produceability Drawings				XXX		
10. Prototype Assembly				XX		
11. Prototype Testing				XXX	XXXX	
12. Release to Production						X

IV. Cost

Test and Checkout Equipment  
(will be given to Production Dept.)

Test Equipment  
(life test, future disc, etc.)

Disc Unit Components  
(will be used for 1st 2 Prototypes)

	MARCH	APRIL	MAY	JUNE	JULY
			2000.	2000.	3000.
		1000.	1000.	2000.	
		2000.	3000.	2000.	1000.
		3000.	6000.	6000.	4000.
					\$19,000

V. Expected Unit Manufacturing Cost

Motor		\$	110.00
Disc			50.00
<sup>1</sup> Heads	6 @ \$100.00 each		600.00
Head Mounting Parts			100.00
Main Frame			30.00
Cover			<u>10.00</u>
			900.00
<sup>2</sup> Electronics			<u>360.00</u>
		Total	1260.00

1. Based on 10,000 quantity.

2. Writers for Timing Track wired but not installed.



# INTEROFFICE MEMORANDUM

DATE March 31, 1966

SUBJECT

TO D. Packer

FROM J. Smith

cc: K. Olsen✓

The attached projection was based on book value of inventory as supplied by Accounting. We assumed control of the manufactured parts and raw-material inventories in February; and at that time, took a physical inventory. Extensions have been completed and discrepancies between book and physical values have been found in both classes. We are now in the process of investigating the discrepancies with Accounting. The outcome will determine if a new projection has to be generated.

# INTEROFFICE MEMORANDUM

DATE      March 30, 1966

SUBJECT    Inventory Projections

TO:      K. C. Ilsen              H. Crouse  
          C. Kendrick         K. Doering  
          J. Smith ✓             R. Richardson  
          T. Lockebrand         R. Brown  
          R. Belden              R. Maxcy

FROM      Dave Packer

The projections below were presented March 18, 1966

	(\$ Millions)						
	<u>2/66</u>	<u>3/66</u>	<u>4/66</u>	<u>5/66</u>	<u>6/66</u>	<u>Change</u>	<u>Cumulative Change</u>
<u>Complete Production</u> (Jack Smith)							
Raw Material	.388	.400	.400	.350	.300	.088	
Work in Process	1.500	1.500	1.400	1.300	1.200	.300	
Manufacturing Parts	.143	.140	.140	.140	.140	.003	
Modules	.534	.480	.420	.375	.325	.209	
Total	2.565	2.520	2.360	2.165	1.965	.600	-.600
<u>Module A (C. Kendrick)</u>							
Raw Material	.755	.598	.542	.543	.559	.196	
Work in Process	.438	.554	.575	.592	.541	(.103)	
Manufacturing Parts	.172	.144	.136	.127	.130	.042	
Total	1.365	1.296	1.253	1.262	1.230	.135	-.735
<u>Module B (R. Belden)</u>							
Raw Material	.130	.119	.100	.090	.090	.040	
Work in Process	.070	.050	.050	.050	.050	.020	
Manufacturing Parts	.004	.006	.005	.005	.005	(.001)	
Total	.204	.175	.155	.145	.145	.059	-.794
<u>Metals Shops (R. Richardson)</u>							
Raw Material	.002	.005	.007	.006	.005	(.003)	
Work in Process	.111	.080	.080	.070	.080	.031	
Total	.113	.085	.087	.076	.085	.028	-.822
<u>Large Computer Checkout (S. Mikulski)</u>							
Work in Process	.962	.879	.755	.522	.651	.311	
Modules	.206	.131	.064	.114	.056	.150	
Total	1.168	1.010	.819	.636	.707	.461	-1.283





# INTEROFFICE MEMORANDUM

DATE March 30, 1966

SUBJECT

TO

K. Olsen  
H. Anderson  
N. Mazzaresse  
J. A. Jones  
W. Hindle  
E. Harwood  
T. Johnson

FROM

Allan Titcomb

This picture of our position in the Physics World, may or may not be as you see it. I hope that it will call attention to Physics and I trust that your comments will get back to me.

I would like to introduce the new products mentioned within - but need help with the business we have today.

Report Discussing Physics Area as a Sink for DEC Computers

Past

As is well known, Physicists have led in the application of computers to scientific projects. Some 120-130 PDP's are currently installed or on order for physics. Our government supports this market area with large amounts of money.

The trend in the small computer division of DEC is to produce computers of ever decreasing price. The large computer group is apparently going in the same direction. Even so, the average Physics System must be about 75,000 dollars. (The total business to date is 8.5 million, estimated)

Present

We have the following outstanding systems on order or soon to be on order:

PDP-7's

1.	University of Oregon Special Interface	P.O.	(April)	92K
2.	ORNL Special Interface	P.O.	(June)	125K
3.	Erlangen Special Interface	P.O.	(May-June)	75K
4.	Princeton-PEPR	LOI	(July)	180K
5.	Yale University	80%	(August Del)	116K
6.	Nijmegen Possible PEPR	P.O.		150K
			TOTAL	738K

PDP-8's

1.	DSIR Special Interface	P.O.		29K
2.	Tokyo	P.O.		18K
3.	Heidelberg Special Interface	P.O.		38K
4.	Yale University	80%		42K
			TOTAL	127K

PDP-6's

1. PEPR for Oxford	50K
2. PDP-6 for Yale	330K
	<hr/>
TOTAL	1.25M

Immediately, we need a good man to do the special work for these systems.

Future

There are four major areas in Physics:

1. Straight Computation
2. High Energy data acquisition
  - a. Spark Chambers (on line)
  - b. Film Reading (Spark and Bubble Chambers)
3. Low Energy
  - a. PHA
  - b. TOF
  - c. Accelerator Control
4. Reactor Monitoring and Control

We do very little in area 1, fair in 2, good in 3, and I'm not clear on 4. (AECL-Hanford etc.)

One item that I would like to build is an ADC of the ramp type. Although there are more sophisticated approaches, we could use an inexpensive unit for our PDP-8,7,9. I estimate the development expense to be about 10K and 3 months of work. (If I had time)

Another possibility is a good film reader for spark chamber use. I would like to visit more people to see what is needed and what it could sell for.

Other challenging systems could be done with the right support and personnel. Also, marketing needs attention which it is not getting.

Regardless of additional support which Physics may or may not get, be advised that the small computer group is not in good position for those systems requiring a medium scale computer. PDP-7 is not the machine, (poor instruction set - short word length.) A common trick when writing specs today is to require more memory in the case of the short word length machine. (What is short?) From the contact that I have had with Physicists and/or Programmers, I guess I am a 36 bit man. I very much hope DEC builds a 100K 36 bit machine. Plenty of memory, fairly simple, (not asynchronous) and fast. Also, how about Interchangeable I/O System among DEC computers?

Summary

No area has as much potential as Physics. (About 1.2 million backlog right now) To take advantage of this fact, we need:

1. One or two good men in Special Systems
2. One engineer
3. Sales/Marketing support
4. A commission plan for salesmen

To: Ken Olsen  
From: Jim Lozouski

March 30, 1966

In answer to your request for my thoughts on how an art department should be run, I submit the following:

I find the answer quite simple- Hire a good, competent, creative art director and let him run it. He should be able to function as a professional among professionals. His capacity should be such that the company can rely on his background and experience to produce its graphics.

However, in industry this is a difficult position to aspire to. Management, in most cases, doesn't feel his function that important. It's intrusting a company's image to this individual - a weighty task most companies would rather circumvent.

The art director's job is more than "drawing pretty pictures" and handing out work. More than compressing time to produce a catalog or bang out a brochure for a trade show. At least I like to think it is.

Actually his thoughts run in the same frequency as the rest of the company-how to introduce a new product, where to introduce it and with how much money. All these considerations are the tools before anything is put on paper. Art talent is only part of the picture. We all know talented people who can draw a picture of uncle Louie in ten minutes -and it looks just like him!. True, he's got to have creative abilities, but he's got to utilize them and direct them into the business he's in. How? Involvement. The only way he can produce good, competitive literature is to get involved with the engineer, with the product line manager, with the writer--all the way down the line. A consolidated effort with an interchange of ideas produces incentive to do better than a good job. He becomes a contributor in the success of a product. An engineer with a

should look  
preconceived idea on how a brochure's graphics and is unbending  
even when shown there are better ways to present it, not only  
limits creative incentive by not seeking advise, but the final  
results are far from satisfactory.

An art director is not a "creative island" or a person whose way  
is always right. He needs direction too. But he has to function  
as a professional-or nobody's getting their money's worth.

The rest of the department? Hire good men. Capable individuals who  
are also contributors. They all have something to offer. They can  
produce and organize a slide show or a manual of drawings once they  
understand the problems and given an opportunity to utilize their  
talents.

Jim Lozouski



# INTEROFFICE MEMORANDUM

DATE March 30, 1966

SUBJECT Inventory Projections

TO K. Olsen H. Crouse  
C. Kendrick K. Doering  
J. Smith R. Richardson  
T. Stockebrand R. Brown  
R. Belden R. Maxcy

FROM Dave Packer

The projections below were presented March 18, 1966

	(\$ Millions)						
	<u>2/66</u>	<u>3/66</u>	<u>4/66</u>	<u>5/66</u>	<u>6/66</u>	<u>Change</u>	<u>Cumulative Change</u>
<u>Computer Production</u>							
(Jack Smith)							
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Manufacturing Parts	.143	.140	.140	.140	.140	.003	
Modules	.534	.480	.420	.375	.325	.209	
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<u>Module A (C. Kendrick)</u>							
Raw Material	.755	.598	.542	.543	.559	.196	
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Manufacturing Parts	.172	.144	.136	.127	.130	.042	
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Total	.204	.175	.155	.145	.145	.059	-.794
<u>Metals Shops (R. Richardson)</u>							
Raw Material	.002	.005	.007	.006	.005	(.003)	
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<u>Large Computer Checkout (S. Mikulski)</u>							
Work in Process	.962	.879	.755	.522	.651	.311	
Modules	.206	.131	.064	.114	.056	.150	
Total	1.168	1.010	.819	.636	.707	.461	-1.283



# EMERY AIR FREIGHT CORPORATION

INVOICE NUMBER  
BOS- 56362 4/2

**IMPORTANT**

TO INSURE PROPER CREDIT PLEASE RETURN DUPLICATE INVOICE WITH PAYMENT OR SHOW OUR INVOICE NUMBER ON YOUR REMITTANCE.

REMIT TO P.O. BOX 7, SCRANTON, PA.

DATE  
3/17/66

PREPAID	FROM	SHIPPER	ADDRESS	CITY & STATE
<input checked="" type="checkbox"/>	DIGITAL EQUIPMENT CORP	146 MAIN STREET	MAYNARD, MASS.	
TO	CONSIGNEE	ADDRESS	CITY & STATE	
<input type="checkbox"/>	UNION CARBIDE	P.O. Box "Y"	OAK RIDGE, TENNESSEE	
OTHER	ACCOUNT OF (APPLICABLE ONLY WHERE CHARGES ARE TO BE PAID BY SOMEONE OTHER THAN SHIPPER OR CONSIGNEE)			

**BILL TO**  
DIGITAL EQUIPMENT CORP  
146 MAIN STREET  
MAYNARD MASS

DECLARED VALUE 50.00	TARIFF DESTINATION TYS	FOR E.A.F. USE ONLY ATR
-------------------------	---------------------------	----------------------------

PAY THIS AMOUNT  
20.73

CHARGES	
AIR FREIGHT (SCALE NO. 407)	12.73
PICKUP	3.50
DELIVERY	4.50
CHARGES ADVANCED AT ORIGIN	
AT DESTINATION	
FEE (FOR )	
VALUATION CHARGE	
OTHER	
SHIPPER'S C.O.D.	
C.O.D. FEE	
<b>TOTAL CHARGES</b>	<b>20.73</b>

SIGNED FOR SHIPPER BY WJP	DEPT. OR ORDER NO.
------------------------------	--------------------

NO. PIECES	DESCRIPTION AND MARKS	WEIGHT
1 ctn	ELECTRONICS	2#

SPECIAL INSTRUCTIONS  
DELIVER TO ADDRESS ABOVE

RECEIVED BY EMERY AIR FREIGHT AT:	EMERY TERMINAL	OTHER CARRIER'S TERMINAL	500	TIME/DATE	3/17	PER	[Signature]
SHIPPER'S DOOR	<input checked="" type="checkbox"/>			LENGTH	X	WIDTH	X
				HEIGHT			
				CUBIC INCHES	=		
				DIMENSIONAL WEIGHT			

THIS IS YOUR INVOICE COVERING TRANSPORTATION OF THE SHIPMENT DESCRIBED ABOVE. GOVERNMENT REGULATIONS REQUIRE PAYMENT WITHIN 15 DAYS.  
ORIGINAL INVOICE  
FORM ORT-PRINTED IN U.S.A.

baggage	Center	Account	U	E	I	Z	J
	1	7272	\$	1			20.73
Order Rec'd.	Price OK	Payment OK	Check No.				

Mail Check

Check To Originator

To: - Ken Olsen  
Another excellent example where cost is of no concern!!  
DEC did bear the cost of the above shipment from Field Service. Depending on the urgency, we would recommend two alternatives.  
APP (insured) - \$1.50  
AIR Express - \$7.30  
If we centralize shipping in Bld 5 Des area, such unnecessary costs would be eliminated!  
F. Kailwell





# EMERY AIR FREIGHT CORPORATION

INVOICE NUMBER

BOS- 56363

**IMPORTANT**

TO INSURE PROPER CREDIT PLEASE RETURN DUPLICATE INVOICE WITH PAYMENT OR SHOW OUR INVOICE NUMBER ON YOUR REMITTANCE.

REMIT TO **P.O. BOX 7, SCRANTON, PA.**

DATE **3/18/66**

4/2

PREPAID	FROM	SHIPPER	ADDRESS	CITY & STATE
XX	DIGITAL EQUIPMENT CORP	146 Main Street	Maynard Mass,	
CON	TO	CONSIGNEE	ADDRESS	CITY & STATE
	Technical Measurements Corp	441 Washington Ave,	North Haven, Conn	
OTHER	ACCOUNT OF (APPLICABLE ONLY WHERE CHARGES ARE TO BE PAID BY SOMEONE OTHER THAN SHIPPER OR CONSIGNEE)			

BILL TO

DIGITAL EQUIPMENT CORP  
146 MAIN ST.  
MAYNARD, MASS.

*AIR Freight to Connecticut!!  
I'd hand carry this to  
I'd comm. for \$10.50*

DECLARED VALUE	TARIFF DESTINATION	FOR E.A.F. USE ONLY
50.00	BXL	

PAY THIS AMOUNT  
10.50

CHARGES	
AIR FREIGHT (SCALE 100%)	7.50
PICKUP	
DELIVERY	3.00
CHARGES ADVANCED AT ORIGIN	
AT DESTINATION	
FEE (FOR )	
VALUATION CHARGE	
OTHER	
SHIPPER'S C.O.D.	
C.O.D. FEE	
<b>TOTAL CHARGES</b>	<b>10.50</b>

SIGNED FOR SHIPPER BY  
WJP

DEPT. OR ORDER NO.

NO. PIECES	DESCRIPTION AND MARKS	WEIGHT
1 ctn	XXXXX ELECTRONICS <i>AIR EXP CHARGE</i>	@2#
SPECIAL INSTRUCTIONS PLEASE RUSH.... MUST BE DELIVER BEFORE 5PM today <i>UPS - .34</i>		

RECEIVED BY EMERY AIR FREIGHT AT:	TIME/DATE	PER
SHIPPER'S DOOR <input type="checkbox"/>	1/135	<i>City</i>
EMERY TERMINAL <input checked="" type="checkbox"/>		
OTHER CARRIER'S TERMINAL <input type="checkbox"/>		
LENGTH	WIDTH	HEIGHT
X	X	X
= CUBIC INCHES = DIMENSIONAL WEIGHT		

THIS IS YOUR INVOICE COVERING TRANSPORTATION OF THE SHIPMENT DESCRIBED ABOVE. GOVERNMENT REGULATIONS REQUIRE PAYMENT WITHIN 15 DAYS.

ORIGINAL INVOICE

FORM O-A-1 PRINTED IN U.S.A.

March 24, 1966

Payroll Savings Plan

Bob Lassen

Harry S. Mann

CC: Ken Olsen ✓

I have talked with Mr. Carlton, the Manager of the Assabet Bank, on the matter of initiating a payroll savings plan for interested employees. I have also talked with Mr. Thompson of the Middlesex Savings Bank. Both banks are prepared to work with us on such a program but the Assabet interest rate is 4% as compared to 3% for Middlesex. It is likely that both banks will make a small upward adjustment to these rates in the next few months.

Nonetheless, the differential is likely to prevail and, hence, it appears that if we enter into this program it should be with the Assabet in order to give our employees the greater advantage.

Initiating this program will involve some extra payroll and tabulating effort at an additional cost to the company. If a real purpose is being served, however, the added cost may well be justified.

In order to determine the desirability of proceeding with the program, I would suggest that a questionnaire be distributed to all employees asking them if they would or would not avail themselves of such a plan. If only a handful of people indicate their interest, I would recommend against proceeding. Conversely, if an excess of 100 people wanted this service, I would expect that it would be worth the effort. I will await your survey results before taking further action.

---

Harry S. Mann

HSM/clw



# INTEROFFICE MEMORANDUM

DATE March 21, 1966

SUBJECT

TO Harry Mann  
cc: Ken Olsen

FROM Ted Johnson

I generally avoid field offices making any contributions to local charities, etc., however, I propose that in the attached case we make a contribution of \$50.00 and get our name listed as a local interested concern. If you approve, please have somebody make this contribution this week, by mail, to the attached correspondent.

TJ/mr

Attachment

# EIGHTH ANNUAL SOUTHEASTERN MICHIGAN SCIENCE FAIR

*March 25-27, 1966 Intramural Sports Building, University of Michigan, Ann Arbor*

COORDINATING OFFICE: INFORMATION SERVICES  
3528 ADMINISTRATION BUILDING, ANN ARBOR, MICHIGAN

8 February 1966

**SPONSORS:**

ANN ARBOR EXCHANGE CLUB  
WELLINGTON BURT, PRESIDENT

UNIVERSITY OF MICHIGAN  
HARLAN HATCHER, PRESIDENT

ANN ARBOR NEWS  
ARTHUR GALLAGHER, EDITOR

**ENDORSED BY:**

SCIENCE CLUBS OF AMERICA

**AFFILIATED WITH:**

INTERNATIONAL SCIENCE FAIR

**FAIR DIRECTOR:**

ELMER SIVACEK  
VICE PRESIDENT AND GENERAL MANAGER  
KING-SEELEY DIVISION  
KING-SEELEY THERMOS CO.

**COMMITTEES:**

**LOCAL ARRANGEMENTS:**

CHARLES W. WIXOM  
RODNEY J. GRAMBEAU  
KENT W. LEACH

**FINANCE:**

JAMES C. RIECKER

**PUBLICITY:**

ARTHUR GALLAGHER  
CHARLES W. WIXOM

**JUDGING:**

JOHN C. ROSEMERGY  
ANN ARBOR PUBLIC SCHOOLS  
THOMAS QUINLAN  
UNIVERSITY HIGH SCHOOL  
CLARK THOMPSON  
ST. THOMAS HIGH SCHOOL

**AWARDS:**

JEAN MOORE

**EXCHANGE CLUB:**

WELLINGTON BURT  
AUSTIN H. BEEBE  
RODNEY J. GRAMBEAU  
JAMES C. RIECKER  
JACK R. DOIDGE  
AVERY R. DOWNER

Mr. Kenneth Olsen  
Digital Equipment Corporation  
3853 Research Park Drive  
Ann Arbor, Michigan

Dear Mr. Olsen:

The Eighth Annual Southeastern Michigan Science Fair will be held in Ann Arbor on March 25-27, 1966. This Fair is again sponsored jointly by the University of Michigan, the Ann Arbor News and the Ann Arbor Exchange Club.

There were 328 participants in the 1965 Fair compared with 282 in 1964. This year we expect over 350 entries. The participants are from the Junior and Senior High Schools from the five counties of Hillsdale, Lenawee, Livingston, Monroe and Washtenaw. We are certain that this Fair creates an incentive for scientific-minded youths to go far beyond their normal classroom work in many worthwhile projects. Each year the caliber of work put forth by these young people has increased.

The Fair is put on through the combined efforts of the sponsors, but we do need your generous financial support. The large number of young science students entering this year's competition makes it necessary to increase our budget. We sincerely hope that you will contribute to the success of the Fair and suggest a contribution of \$50.00. Check should be sent to:

Southeastern Michigan Science Fair  
Ann Arbor Bank  
Attention: J. Riecker

Very truly yours,

  
Wellington R. Burt, Chairman  
Science Fair Executive Committee

The Exchange Club of Ann Arbor was organized in 1922, as a member of the National Exchange Club, to:

- A. Exemplify the real meaning of "Exchange" in every day business and professional life, by the maximum of service.
- B. To promote and encourage good fellowship and acquaintances between members and their families.
- C. To take an active interest in humanitarian, civic, state and national affairs.

The Ann Arbor Exchange Club presented the first Southeastern Michigan Science Fair in 1959, and has continued to sponsor it, along with the University of Michigan and the Ann Arbor News, since that time.

The first year the Fair was for students in Washtenaw County, but in subsequent years, Lenawee, Livingston, Monroe, and Hillsdale Counties have been included.

The Exchange Club's main role is to raise the funds which cover the cost of the Fair, including arrangements, prizes and the trip to the National Science Fair for the senior boy and girl winners. Members of the Club meet with the co-sponsors periodically to prepare for the annual event.

The winning boy and girl of the 1965 Fair were sent to the National Science Fair in St. Louis, Mo. Previous winners have finished high in the competition.

Other local Fair awards include annual scholarships totaling \$650, cash prizes, science books, Argus cameras, medals and ribbons. In addition, other awards are provided by the Detroit Edison Company, Army, Navy, Air Force, NASA and professional scientific societies.

All monies collected for the Science Fair are deposited in a special fund to be used exclusively for the expenses for the Science Fair. The following business and industrial firms contributed to the Fair in 1965:

American Ceramics Society	General Motors Corporation
American Metal Products Company	Berry Industries
Ann Arbor Bank	Buhr Machine Tool Company
Ann Arbor Federal Savings & Loan	Chrysler Corporation
Ann Arbor News	Cimco Engineering Company
Ann Arbor Trust Company	Conductron Corporation
Argus, Inc.	Consumers Power Co.
Associated Spring BGR Division	The Detroit Edison Company
Bendix Corporation	Federal Mogul
Ford Motor Company	Micrometrical Manufacturing Co.
Geiger & Hamme Acoustical Lab.	National Bank & Trust
Gelman Instrument Company	Michigan Consolidated Gas Co.
Hoover Ball & Bearing	Parke Davis & Company
Huron Valley National Bank	R & B Tool Company
Industrial Tectonics	R.T. Brokaw, Inc.
King Engineering Corporation	Sensor Dynamics, Inc.
King Seeley Thermos Company	Tecumseh Products
Lear-Siegler, Inc.	University Microfilms
Michigan Bell Telephone Co.	

This year the students will set up their exhibits in the Intramural Sports Building, The University of Michigan, on the afternoon of Friday, March 25, 1966. Judging will take place Friday evening and Saturday morning. The awards luncheon will be held at noon on Saturday, March 26. (Lunch paid for from Fair treasury). The Fair will be open to the public Saturday afternoon and evening and Sunday afternoon.

The anticipated budget for the 1966 Science Fair is \$4000.

The Club also sponsors a Model Aviation Meet, which each year draws about 150 entrants:

Sends a boy to Wolverine Boy's State in Lansing, for a week:

Started and still maintains the Sheltered Workshop at Ypsilanti State Hospital, and the Washtenaw County Infirmary:

Contributes financial support to various civic good will projects.

Money for these projects is raised by other methods.

Wellington Burt  
Chairman  
Science Fair Committee

dec

INTEROFFICE  
MEMORANDUM

**SUBJECT** Dr. A. Harel

**DATE** March 21, 1966

**TO** Ken Olsen ✓  
Bob Lassen

**FROM** Ted Johnson

I indicated to Ken that I had talked with Dr. Harel, who was called to our attention by Sonnenfeldt. He is a senior man with terrific technical background and eventually wants to be an employee for us in Israel. I think we owe it to him to seriously look at his resume and I could contact him while in New York to meet with him in person, if his background looks interesting to us in engineering and eventually possibly as a representative in Israel.

ABRAHAM HAREL

DR. SC. TECHN.

CONFIDENTIAL

Westgate Apt. 5-B  
550 Lawrenceville Rd.  
Trenton, N.J., 08638

Telephone (609) 882-5131

March 12, 1966

Mr. T. Johnson, Overseas Operations  
Digital Equipment Corporation  
146 Main St., Maynard, Mass., 01754

Dear Mr. Johnson:

Following our phone conversation, I have compiled a list of my publications and prepared a copy of my (co-authored) last paper, delivered last month at the ISSCC in Philadelphia, and I am enclosing them with this letter, together with my resume, as requested.

I will look forward to an early reply and to a chance to personally discuss with you in greater detail the possibilities of expanding DEC business in Israel to our mutual advantage.

Sincerely yours,

*Abraham Harel*

Enclosures.



ABRAHAM HAREL

DR. SC. TECHN.

RESUME

Received the B. S. degree in 1952 and the Professional Engineering (Dipl. Ing.) degree in 1953, both in Electrical Engineering, from the Technion, Israel Institute of Technology. In 1956 received the M. S. degree in E. E. from the University of Pennsylvania, where also engaged as Research Assistant for two years. Continuing the research work in the field of transistorized telephone systems, received in 1958 the degree of Dr. Sc. Techn. in E. E. from the Swiss Federal Institute of Technology (E. T. H.), at the same time working with Zellweger Ltd. in Switzerland.

Became associated with the Radio Corporation of America in 1953, coming as an Exchange Visitor for one year to the Camden, N. J. plant, and gaining design experience in the areas of computer logic, transistor circuitry and industrial television. In 1958, after completing the formal education, returned to R. C. A. , joining the Industrial Computer Department of the Electronic Data Processing Division, and engaged in studies concerning a nanosecond computer, a data system for an experimental atomic fusion reactor and an industrial control computer, as well as in the design of a digital control system delivered to Western Union for the supervision of a new nationwide communication network. During 1961 was the Project Engineer responsible for the design, fabrication, checkout and installation of a computer system for the National Aeronautics and Space Administration's Saturn Ground Complex. In 1962, after completing that project, transferred to the Laboratories Division at Princeton, N. J., becoming engaged in fabrication of thin-film-transistor integrated arrays and their applications to computers. In 1966 received a Team Achievement Award for this work.

Born 1927 in Israel, now a U. S. citizen, married, Member of the Institute of Electrical and Electronics Engineers, and the Sigma Xi. Published more than a dozen professional publications, including several U. S. and foreign patents.



# INTEROFFICE MEMORANDUM

DATE March 17, 1966

**SUBJECT** REVISED COST FOR MOVING MACHINE SHOP & SHEET METAL FROM  
BUILDING #4 TO BUILDING #6D and 7

**TO** Ken Olsen **FROM** Loren Prentice

cc: Dick Richardson  
Harry Mann

**ELECTRICAL**

Lighting	\$3,100.00
Power distribution	900.00
Extension of 440 volt lines from Bldg. 4 to 7	<u>300.00</u>
ELECTRICAL TOTAL . . . . .	\$4,300.00

**PAINT**

Scrape ceilings, walls and paint Bldg. 6D	\$1,971.00
Scrape ceilings, walls and paint Bldg. 7	<u>\$1,634.00</u>
PAINTING TOTAL . . . . .	\$3,605.00

**PLUMBING**

Install 1300 feet of new radiation fan blower type; reinstall approximately 6 blower units now there (these to be relocated and zoned with thermostats); reinstall & reconnect wall type radiation and install radiation now on hand.	\$1,200.00
Repair to ladies toilet (minor)	<u>\$ 200.00</u>
PLUMBING TOTAL . . . . .	\$1,400.00

**BUILDING REPAIRS**

Repair concrete floors	\$ 150.00
Building two offices (labor & material)	556.00
Building a tool crib 22' x 30'	302.00

Duct work, fume removal \$ 500.00  
BUILDING REPAIRS TOTAL . . . . . \$1,508.00

MOVERS & RIGGERS . . . . . TOTAL . . . . . \$ 500.00

GRAND TOTAL . . . . . \$12,513.00

ITEMS DESIRABLE BUT NOT ESSENTIAL

Repairs to elevators - new gate \$ 630.00

Addition of one additional section to the 2,171.00  
paint booth (purchased price and installation)

DESIRABLE BUT NOT ESSENTIAL TOTAL . . . . . \$2,801.00

INCIDENTAL EXPENSES INCURRED WITH THE MOVE

3 days lost time for employees in the Sheet Metal \$3,912.00  
and Machine Shops

Approximately 1/3 the cost of the extension 1,335.00  
of the fire alarm system

INCIDENTAL TOTAL . . . . . \$5,247.00



# INTEROFFICE MEMORANDUM

DATE March 17, 1966

SUBJECT Power Control System

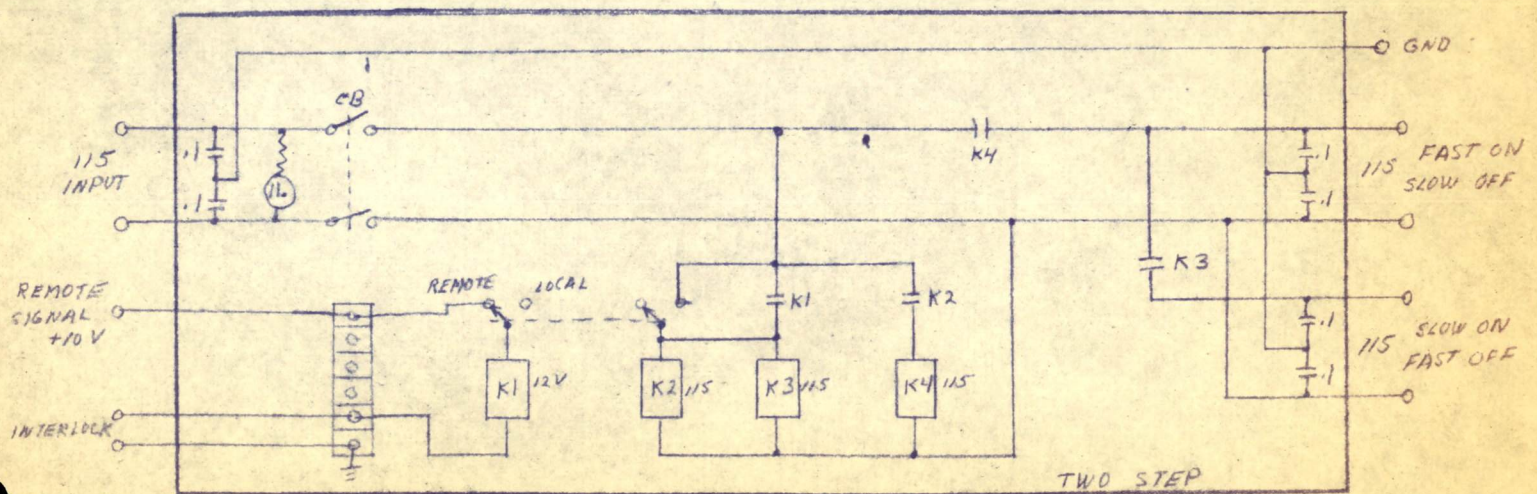
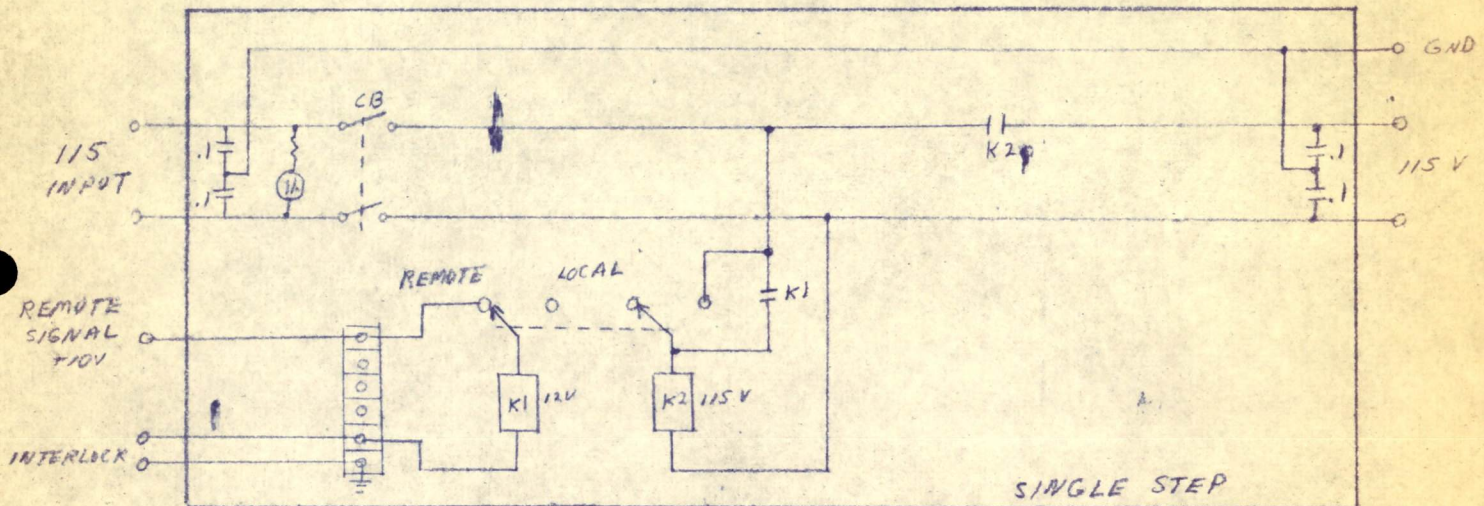
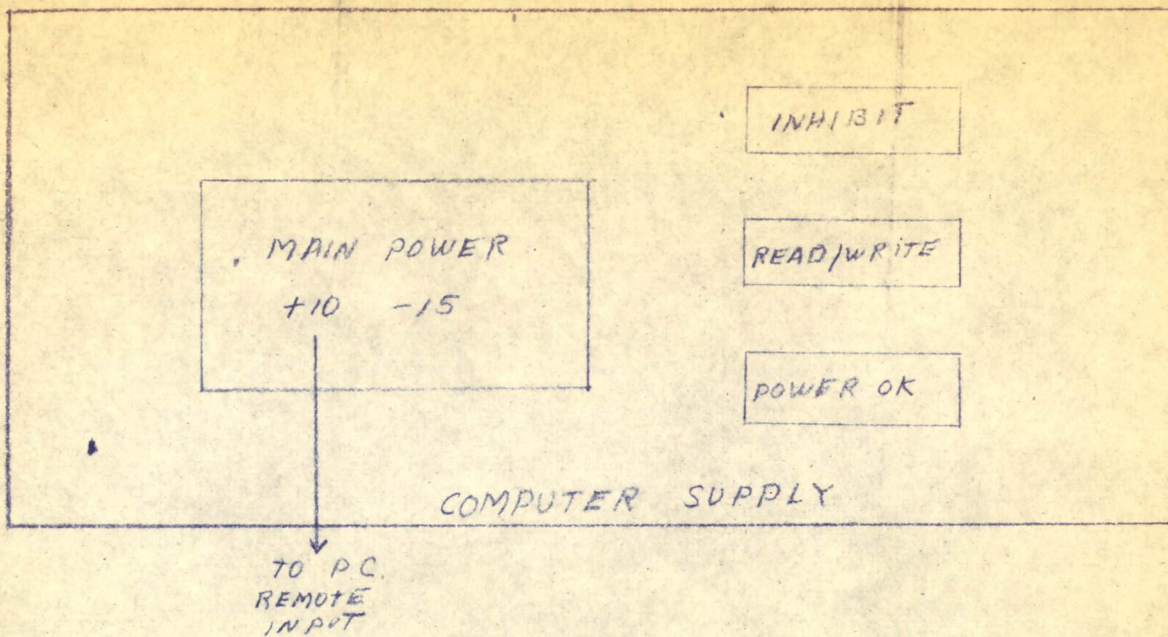
TO Ken Olsen  
CC: N. Mazzaresse  
M. Ford  
J. Jones

FROM Ed Harwood

Each computer type will have its own special power supply (some computers might share one type) very similar to the 708 P.S. used in the PDP-8. Each P.S. will have its own two step power control system either relay operated as is now used or solid state which is being investigated.

The only real difference between the system presently used in the 708 and the one I would propose is that the new one would send out a +10 volt signal instead of the present 115V. This would be a very minor change in the PDP-8 power supply. With the main power control built into the computer power supply, we could get along with external power controls (832 & 834) capable of handling 20 amps instead of 35. This means a savings of approximately \$3.00 per relay at the quantities we presently use. We would offset this savings by adding a small relay to each P.C. which would allow us to turn on with a 10 volt signal.

We could now eliminate all but the 832 and 834 and have two power controls which will handle almost 100% of the small computer needs.



POWER CONTROL SYSTEM  
 3/16/66 EH



# INTEROFFICE MEMORANDUM

**SUBJECT** Senior Personnel  
**TO** Ken Olsen  
**DATE** March 17, 1966  
**FROM** Ted Johnson

Several senior personnel we could, or are, considering at the present time. Resumes available for discussion.

1. LINDY CRIDDLE - Manufacturing

Although we possibly couldn't get together on a position, I believe he would definitely be worth a discussion with you and Nick. Note the memory background. He is very highly regarded, especially over the West Coast. I will find out if he'll be at IEEE.

2. DR. A. HAREL - Design Engineering, Israel Sales

This is the man Sonnenfeldt called about. His technical background is excellent and he made sense on the phone. He wants to return to Israel, but could possibly be useful here, then on to Israel. What do you want to do?

3. TOM DALZELL - Regional Sales

We are going ahead to see if we can interest him in managing a Regional Office here, probably the Mid West. There is general support for this idea.

4. ALAN MARSTON - Systems Management, possible Engineering Manager

Worked with him a CSC. He is interested in DEC and the East. Nick is considering. He is steady, organizer type. Cool, but friendly. He is respected.

5. CLARK CROCKER - A/D

I worked with Clark at CSC also. He has top reputation in A/D circles. He is at Adage. Nick and I are proceeding to see where he stands against our need and go-ahead on A/D.

TJ/mr

Attachments: Resumes

1. Linden Criddle
2. Dr. A. Harel
3. A. Marston

# CONFIDENTIAL

## Resume (approximated for LINDEN CRIDDLE)

HOME: Ensino, California

TEL: AC 213 784-1679

AGE: Approx. 39 (?)

UNITED CONTROLS General Manager (recently moved)

SDS (1964 -1966)

Began as top manufacturing man. 6 months ago, made Vice President of Manufacturing. Joined when first starting 930s and were months behind first delivery. Outside world saw deep trouble. Generally believed SDS now has a very good production system.

LOCKHEED ELECTRONICS (Maywood) Director of Manufacturing (1963-1964)

Manufacturing all Lockheed memories. They now have lowest cost high-speed memory on the market.

TELEMETER MAGNETICS Director of Manufacturing

Put production in order and during this period went from small producer to large supplier for RCA and Philco. Magnetic core memory systems and cores.

CSC (Consolidated Systems Corporation) Vice President of Engineering or Manufacturing

FMC (Food Machinery and Chemical Company)

Promoted very quickly, did well. Designed new machine to put filter tips on cigarettes and cigarette rolling machine.

TJ/mr

Copies To:

HARLEY MANN  
Ken Olsen  
Stan Olsen  
Bob Lassen  
Win Hindle  
Nick Mazzarese

ABRAHAM HAREL

DR. SC. TECHN.

CONFIDENTIAL

Westgate Apt. 5-B  
550 Lawrenceville Rd.  
Trenton, N.J., 08638

Telephone (609) 882-5131

March 12, 1966

Mr. T. Johnson, Overseas Operations  
Digital Equipment Corporation  
146 Main St., Maynard, Mass., 01754

Dear Mr. Johnson:

Following our phone conversation, I have compiled a list of my publications and prepared a copy of my (co-authored) last paper, delivered last month at the ISSCC in Philadelphia, and I am enclosing them with this letter, together with my resume, as requested.

I will look forward to an early reply and to a chance to personally discuss with you in greater detail the possibilities of expanding DEC business in Israel to our mutual advantage.

Sincerely yours,

*Abraham Harel*

Enclosures.



ABRAHAM HAREL

DR. SC. TECHN.

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Born 1927 in Israel, now a U. S. citizen, married, Member of the Institute of Electrical and Electronics Engineers, and the Sigma Xi. Published more than a dozen professional publications, including several U. S. and foreign patents.

RESUME

ALAN D. MARSTON  
167 Catherine Park Dr.  
Glendora, Calif.  
Phone (213) 335-6990

PERSONAL

Age - 39  
Date of Birth - 14 March 1926  
Birthplace - Sistersville, West Virginia  
Marital Status - Married, three children

Education: Graduated Huntington High School  
West Virginia -- June 1944  
Graduated University of Louisville,  
Kentucky -- December 1948  
B.E.E. (Power & Communication)

Military U. S. Navy, July 1944 - July 1946  
Service: V5 and NROTC (V-12)  
Discharge - Honorable

Clearance: Secret LAAPD (Air Force)

EXPERIENCE

August 1956 to  
Present

SDS DATA SYSTEMS (formerly Consolidated Systems Corp.)  
Pomona, California

Position: Director, Digital Systems Engineering Department.

Supervise: Five Section Managers  
Thirty-One Engineers  
Six Computer Programmers  
Twenty Engineering Specialists  
Twelve Technicians  
Two Cost Analysts

Technical Areas: 1) Industrial Process Systems  
2) Geophysical Data Systems  
3) Telemetry Data Processing Systems  
4) Facility Data Processing Systems  
5) On-Line Computers and Software for above  
6) Development, corporate-supported for above

The above entails responsibility for proposals, costing, sales assistance, design, documentation, test, installation, and acceptance.

Digital Systems Department  
Sales for 1965 -- \$7,700,000  
New Orders 1965 -- 5,300,000  
Backlog 1965 -- 4,100,000

Budget Sales for 1966 are \$8,267,000  
Budget New Orders for 1966 are \$9,300,000  
Approximately 50% of this is commercial business.

EXPERIENCE - Cont'd

SDS DATA SYSTEMS

Present Salary: \$20,500/yr. Starting Salary: \$8,100/yr.

Position held in March 1964 - Director Digital Systems  
Oct. 1960 - Engineering Dept. Manager,  
Data Processing Systems  
April 1959 - Chief Engineer,  
Data Processing Systems  
August 1956 - Project Chief,  
Data Processing Systems

March 1953 to  
August 1956

U. S. NAVAL ORDNANCE LABORATORY, Silver Spring, Md.

Last position as Section Chief. Assignment in electronic fuzes for rocket, guided missiles and special weapons for feasibility, design, development and evaluation. Salary: \$7,570/yr (GS-12). Started \$5,000/yr. (GS-9)

January 1949 to  
March 1953

POTOMAC ELECTRIC POWER COMPANY, Washington, D.C.

Last position as Area Chief for design of low-voltage and high-voltage overhead and underground networks, street lighting, and traffic signals.

TECHNICAL AREAS OF RESPONSIBILITY

Most recent development program is the development of a small, portable low-weight, low-power high-speed digital data acquisition system for geophysical seismic recording. A completely new logic family was designed utilizing Fairchild micrologic monolithic integrated circuits, metal oxide field-effect transistors (MOS) for high-speed commutator, 800-bit seven and nine track, 120 kc, read/write electronics, sample and hold type D/A with digitally-controlled AGC. Dynamic recording range is 168 db. This program is corporate-financed at \$275,000 and has been developed in one year.

A complete line of industrial system products is presently being designed. For example, precision relay analog commutator, digital-input scanner, computer I/O for computer control of input and output devices. System has been designed and built for such applications as a batch weighing and control system for a foundry for Chrysler Corporation, in Detroit; an automatic control system for Empire-Reeves, and U. S. Steel steel-rolling mills.

PAM/PDM synchronizer and simulator, PCM frame synchronizer and simulator has been developed for the telemetry data processing systems.

The standard analog-to-digital data acquisition system developed is the MicroSADIC and associated equipment such as low-level commutator, transducer individual excitation power supply and conditioning unit. This involves technology of both low speed (10 sps) and high speed (50,000 sps) data

systems, low-level signals, high-accuracy low-level differential amplifiers, grounding and shielding techniques, transducer conditioning techniques and on-line computers.

Other technical projects have included NASA digital and tone-command generators for transmission of commands to satellites and a recent \$1,000,000 system for NASA/KSC which had to be delivered in 120 days with a penalty of \$1,000/day for each day late.

System dollar value varies from minimum of \$15,000 to \$1,850,000 with delivery from 60 days to one year. QC requirements vary from commercial specifications to MIL9858 to NASA 200-3 and 200-4.

Held responsible for establishing budgets and meeting budgets for department operating expenses, proposal costs, contract costs and pricing, department sales, establishing assigned company standard operating procedures, terms and conditions of contract, proposal preparation, instruction manuals, installation and acceptance at customer facility, and contract negotiations. Introduced new manufacturing techniques from tubes to transistors to integrated circuits, from wire soldering to Burndy "hyphen" pins to wire-wrap techniques, from hand soldering of printed circuit cards to hot-dip techniques of plating with wave soldering of components and new packaging techniques. Also design of automatic computer control for verification of wired card racks.

I am a member of the SDS Data Systems operating committee, make formal review of technical proposals and cost, participate in pricing meetings and in new business committee.

REFERENCES:

Mr. Harry E. Burke, President  
Huggins Laboratories, Inc.  
999 East Arques Avenue  
Sunnyvale, California

Mr. B. M. Bushman, Vice President (formerly Vice President  
Non-Linear Systems, Inc. of SDS Data Systems)  
877 Guanajuato Ave. (home)  
Claremont, California

Kennett W. Patrick, General Manager  
Electro-Optical Division  
Perkin Elmer Corporation  
P. O. Box 730  
Norwalk, Connecticut



# INTEROFFICE MEMORANDUM

DATE March 16, 1966

SUBJECT Outstanding Status and Projects: Manufacturing Representatives and Distributors

TO Ken Olsen ✓  
Nick Mazzaresse  
John Jones  
Mike Ford  
Stan Olsen  
Win Hindle  
Mort Ruderman  
Pat Greene  
Dick Testa

FROM Ted Johnson

I have been lagging in the action-taking required for our rep and distributor program. To keep you informed of our current situation and my plans, here is a list of our present and projected relationships and changes planned.

We have discussed future expansions individually. The needs of the various product lines differ quite radically. But I think we can work out fairly clear guidelines and develop our capability for drawing sensibly and efficiently on a range of available channels of sales, service and market development and distribution. Knowing where we stand in the other product lines will be useful to each product manager.

I am going to try to arrange appointments at IEEE with as many of these people as are available. So far, I have scheduled a meeting with Landseas Corporation. I would like to discuss any questions you have before IEEE so that we have a common understanding of our commitments, representatives and policies.

## U.S.

### 1. ALLIED RADIO

- A. No official signed agreement, allowing a non-exclusive arrangement for modules.
- B. Some activity, mostly Mid West and North West, but requires active mail support and salesman's cooperation from us.
- C. Advantage simply in promotion and service to customer on small module orders.

### 2. CARROLL COLLIER, Sacramento

- A. Standard modules and small computers agreement.
- B. Area basically Sacramento and McClellan AFB.
- C. Completely under Ken Larsen's control.

- D. Non-exclusive (allows Allied to compete).
- E. On continuing basis, subject to 30 day notice.
- F. Not clear yet what we gain, but not draining our time and providing quite knowledgeable liaison.

3. DATRONICS - Texas

- A. Modules only.
- B. Stocking (distributor) small quantities currently being considered.
- C. Doing a fair job, cooperative.
- D. Might extend area to Mississippi.
- E. Under Don Henderson, support will be forthcoming from Laveris, who will concentrate on small computers.
- F. New agreement pending.

4. SHOWALTER-JUDD

- A. Modules and possibly memory testers.
- B. Currently being reviewed, now that we have an office (Dick Wilkinson).
- C. Under Ken Larsen.

5. SY STERLING - Manufacturing Rep/Dealer - MidWest

- A. Currently considering supporting as a non-authorized dealer (quantity discount) for modules and Lab Kits.
- B. Owner (Sterling) owns big part of Ann Arbor Computer.
- C. Have respect for their operation, old H-P rep., businesslike, high technical capability.
- D. Decide at IEEE Show.

6. Other Possibilities

- A. Distributor/Representative in Southeast.
- B. Laboratory distributors for Lab Kits to educational markets.
- C. Modules distributor/dealers.

FOREIGN

1. RIKEI - Japan

- A. Sold memory testers and some small computers.
- B. In response to request, supplied excellent market survey/forecast. (attached)
- C. No serious mention of modules, I intend to probe possibility of distributor agreement with them or others immediately.
- D. No active agreement, they are requesting a new one.
- E. Require more active liaison and support program. (see final conclusions)
- F. Suggest we review seriously, possibly get another rep for modules to test their activity. We need to have a trading company in any case.
- G. Japan is big but increasingly competitive market for computers. Unless we put in Japanese-American, recommend we continue on same restricted basis.

2. ENGLAND (SASCO)

- A. Mail-order Allied-type distributor.
- B. Propose concluding agreement now for modules.
- C. Mailing list 25,000.
- D. Salesmen, limited, non-technical.
- E. Service strictly their only asset.
- F. Only concern is that largely owned by Phillips.
- G. Non-exclusive arrangement.

3. GERMANY (Consideration)

- A. Have possible distributors for modules, mainly Amphenol-Borg. Being reviewed, along with Benelux, Switzerland, Italy, France.

4. LANDSEAS (Israel)

- A. Informal agreement, they've been working for us for many months.
- B. Excellent reputation in Israel, have New York Office.
- C. Proposed modules distributor arrangement.
- D. Suggest New York meeting (IEEE).
- E. Need to define their areas immediately.

- F. Intend no field support, all service through New York.
  - G. Good field service capability, if used right.
  - H. (Have current request from Dr. Harel, senior computer engineer, to represent us in Israel, direct input to K.H. Olsen requiring discussion as soon as possible.)
5. S.S. KOPPE (Latin and South America)
- A. Represent us on PDP-8 Typesetting systems.
  - B. Purchasing Agent for publishers in that area.
  - C. Requires 60 days notice for termination.
6. TELARE (Scandinavia)
- A. Rep for all DEC standard products in Sweden, Norway, Denmark and Finland.
  - B. Agreement in Sweden until June 1967.
  - C. Field Service and other countries subject to 60 days notice.
  - D. Not, in our opinion, doing a good job, but has new management. (ARENCO)
  - E. Recommend termination in areas outside Sweden. Have candidates for other three countries now.
  - F. Now being handled through U.K. office, which will need more administrative help.
  - G. We move in Field Service and hardware sales engineer as soon as possible to support AGA and Telare and other Scandinavian reps.
  - H. Contact to see if representative will be at IEEE.
7. UNIVERSITY OF MEXICO (S. Beltran)
- A. Negotiating arrangement for representing us on sale of Lab Kits.
  - B. Commission in free modules to the University.
8. HODGES - South Africa
- A. This arrangement kept active because of PDP-6 lead at Witwatersrand.
  - B. Must clear up arrangement as soon as possible.
  - C. Authorized by Gerry Moore to represent us on computers and modules.
  - D. Requires prompt attention and clarification. Will consult with you immediately for your opinions. I'm afraid this one is least under control at this point, but no written agreement except telex. University of Witwatersrand deserves special letter.



Other Current Inquiries, etc.

1. PLURIMAC (Brazil)
  - A. American engineer who has company and wants to rep us on computers in Brazil.
  - B. Require more information on them.
  - C. Suggest modules distributor and see how it works. (if they look good)
  
2. ARNOLD RATNER ASSOCIATES, INC.
  - A. South, New Jersey, Philadelphia, Maryland, North Virginia.
  - B. Rep.
  - C. Suggest no interest (bad lines) for any product.
  
3. TAGE OLSEN (Copenhagen)
  - A. Tektronix rep.
  - B. Suggest modules distributor arrangement.
  - C. Possible finder's fee on computers.
  
4. JAPAN
  - A. Connecticut Yankee Research Corporation requesting opportunity to help us in Japan. (Information only)
  - B. Munzig International - Successful Japanese rep firm, managed by an American here. I will meet him again to discuss possibilities (modules particularly).
  
5. RAMCO
  - A. New Mexico, Arizona, Utah, Colorado, South Nevada, W. Texas.
  - B. Suggest we explore additional help in New Mexico and Colorado.
  - C. Giving to Skip for comment.
  - D. Currently planning to put Denver office under either Los Angeles or San Francisco office.
  
6. MARIOS DALLEGIO (Beckman)
  - A. Inquired for PDP-6, sending letter immediately Greek AEC.
  - B. No agreement.
  - c. Letter Januray 11, 1966 from Gerry Moore inferred commission on small

computers. Will consult with you immediately and write a nice letter to clear up our situation.

D. If look good (so far they do), propose modules distributor.

### Final Conclusions

1. Small Computers have clearly spelled out a no-expansion policy on sales to other countries. We have remote installation policy which should be considered. Suggest we work out long-term plan before we make other commitments. Basic criteria now: direct sales, no expansion without clear plan for going direct.

Future: Look at ease of service on machines to determine feasibility of remote sales.

2. Recommend clarification of memory tester sales program, and costs.
3. Propose reasonable modules and/or Lab Kit distributor/dealer arrangements, with no area support except answers from Maynard. Will develop good future framework gradually and commit representatives to performance.
4. Look at parallel advantage of reps to get fast market penetration.
5. Get distributor/rep support man to work for me to make the small program and Allied successful. (See attached recommendations on Allied)

TJ/mr

Attachments

## ALLIED

1. Get Allied management to send letter to each Allied office spelling out our working relationship.
  - A. Service not sales (delivery)
  - B. Keeping our sales offices informed.
  - C. Not giving customers impression they are reps, can look to us for applications support or point of order.
  - D. Their success demands cooperation on both sides.
2. Mail out instructions and simple guides to promoting our products, especially Lab. Kits.
3. Push advantages of Lab Kits.
4. Help our salesmen to understand relationship (most are still confused).
5. Hopefully get chance to mail to them (salesmen) directly, encouraging them about the advantages of working with us.



# INTEROFFICE MEMORANDUM

DATE March 15, 1966

SUBJECT Business Computer Study Report

TO Harry S. Mann

FROM Dave Packer

## I. Background

Following Works Committee approval in December 1965, we\* have been actively engaged in a study of business data processing equipment aimed at recommending equipment for DEC's internal requirements.

Manufacturers evaluated were:

International Business Machine Corp. (IBM)  
Honeywell, Inc.  
Burroughs Corporation  
General Electric Corporation  
Digital Equipment Corporation

Following is our recommendation and reasons for the choice.

## II. Recommendation

We recommend that DEC rent from Burroughs Corporation a B300 computer system consisting of a central processor, disk storage, punched card input-output equipment, and a magnetic tape unit.

This equipment will replace all of our existing punched card equipment, except for one sorter, one interpreter, keypunches, and verifiers.

Cost of the B300 system is \$4284/month. Regular time cost of the punched card equipment to be replaced is currently \$2592/month. Regular secondshift operation and equipment additions now planned will increase the total cost to about \$3300/month.

Total data processing costs, including personnel, will rise by \$1000-\$1500/month if this recommendation is accepted. We believe this increment will be justified many times through more timely reporting, reductions in clerical effort, and better analysis of information possible with computer speed and logic.

Delivery of the system should be planned for October 1966.

\* Involved in the study have been D. Packer, G. Collicelli, F. MacLean, L. Portner, and E. Fitzgibbons

## III. Commercial Systems Evaluated

Three manufacturers submitted formal proposals and devoted time to analyzing our system requirements. The systems proposed were:

## IBM

1440 Processor, 12K Memory	
Card Read Punch	400 CPM Read
	120 CPM Punch (Max.)
Printer	300 LPM
Console Typewriter	
3 Disk Storage Drives	6 Million Characters Storage
	170 M Second Access Time

## Honeywell

120 Processor, 12K Memory	
Card Reader	400 CPM
Card Punch	100-400 CPM
Printer	450 LPM
2 251 Mass Memory Files	31.6 Million Characters Storage
	95 M Second Access Time

## Burroughs

B300 Processor, 9.6K Memory	
Card Reader	800 CPM
Card Punch	100 CPM
Disk Drive	9.6 Million Characters Storage
	20 M Second Access Time
Printer	475 LPM
Tape Drive, 24KC Transfer Rate	

In addition, consideration was given to an in-house system, either a PDP-7 or the PDP-6.

Both the IBM and Honeywell configurations provide random access via removable disk packs. The Burroughs system has a fixed disk and so requires magnetic tape for backup.

IV. Commercial Evaluation Summary

Each system was evaluated on the following criteria:

1. Price
2. Delivery
3. Hardware
4. Software
5. Manufacturers Support (Systems help, training, maintenance, backup systems)
6. Throughput

1. Price

IBM	\$5300/month
Honeywell	\$4485/month (3 year contract) (Quoted price was \$4385 but did not include disk packs which must be purchased at \$375 each. For rental comparison, about 1/40th cost of 10 packs was added)
Burroughs	\$4284/month (100 hour/month contract) (The 100 hour contract would be adequate for at least 18 months after delivery. Rental is \$4630/month for full 176 hour contract)

2. Delivery

IBM	9 - 12 months
Honeywell	9 months
Burroughs	6 months

Delivery figures cannot be firm until an order is placed.

3. Hardware

Basic hardware specs appear below. These specs are meaningful only as they relate to throughput.

	<u>Cycle Time</u>	<u>Card Read</u>	<u>Card Punch</u>	<u>Line Print</u>	<u>Mass Storage</u>	<u>Random Access Time</u>
IBM	11	400	120	300	6	170
Honeywell	3	400	400	450	31.6	95
Burroughs	6	800	100	475	9.6	20

It is apparent that Honeywell and Burroughs are far superior to IBM in almost every category. One Honeywell component, the Mass Storage Device, is new, due to be released this Fall. We should be aware of the possible consequences of problems in a new product.

#### 4. Software

Software has been evaluated in several categories. The rankings are:

	<u>IBM</u>	<u>Honeywell</u>	<u>Burroughs</u>
COBOL	3	2	1
Assembly Language	2	3	1
Utility Programs	2	3	2
Application Programs			
	2	3	1
Operating System	3	2	1
Documentation	1	3	2

Burroughs ranks first, with a fine COBOL system and good software support. A limited operating system is available.

IBM's COBOL is less powerful than Burroughs, and extremely slow to compile. No 1440 operating system exists.

Honeywell's COBOL for our system would be unavailable until early 1967, forcing initial coding in assembly language. This, plus recent software slippages dictate ranking Honeywell last.

#### 5. Manufacturer Support

This area includes the amount and quality of systems and software support, training of our staff, maintenance, and availability of backup systems for use when:

Rankings are:

	<u>IBM</u>	<u>Honeywell</u>	<u>Burroughs</u>
Quantity of Support	1	3	2
Quality of Support	1	3	1 (Tie)
Training	1	3	2
Backup	2	1	3

IBM is ranked first, Burroughs second and Honeywell third.

Burroughs has the highest number of systems and maintenance people per installation in this area. IBM, however, has far more people in total. Burroughs experience is heavily in banking. They are attempting to build a manufacturing base, which is both good and bad. We feel they will devote substantial effort to create a happy manufacturing user, even though their manufacturing experience is less than IBM's.

## 6. Throughput

A throughput comparison was reached by submitting sample programs to manufacturers and by evaluating hardware specs as they effect throughput. Burroughs ran all programs; IBM ran only one, and Honeywell used hand timings. Rankings are:

- i. Burroughs
- ii. Honeywell (Estimated at 120% of Burroughs time)
- iii. IBM (Estimated at 175% of Burroughs time)

## V. In-House Equipment Evaluation

We recommend that the company not use its own equipment for the following reasons:

- a. Lack of backup. The company cannot afford a catastrophic failure which would preclude all data processing.
- b. Software. The PDP-6 has no business language or utility routines. The PDP-7 language is far less desirable than COBOL, available on all commercial equipment. Additionally, any new hardware device would require additional compiler development for business use.
- c. Hardware. Because we do not sell commercial equipment, hardware design is often incompatible with business requirements. Reliability and specifications are two areas where DEC design and business requirements can differ substantially.

## VI. Evaluation Summary

The chart below summarized the factors leading to our recommendation:

	<u>IBM</u>	<u>Honeywell</u>	<u>Burroughs</u>
Price (\$/mo.)	5300	4485	4284
Delivery (mo.)	9-12	9	6
Hardware (Rank)	3	2	1
Software (Rank)	2	3	1
Manufacturer Support (Rank)	1	3	2
Throughput (Rank)	3	2	1



Key factors leading to the recommendation are:

1. Performance/\$:
 

Clearly, Burroughs ranks high in this category.
2. Manufacturer Support:
 

Although IBM ranks high, we believe this does not justify the rental and performance differential. We have been impressed with Burroughs people and feel there is at least a 50% probability that Burroughs support will be superior to IBM's.
3. Delivery:
 

Less important than the above, but the possibility of a 12 month delivery from IBM is significant.

## VII. Data Processing Cost Differential

The chart below shows cost reductions and increases that would result from replacing punched card equipment with a B300 computer system. It includes only tangible costs - hardware and people.

A. Reductions in Existing Costs	
*Rental of Punched Card Equipment	2592 / mo.
Additional Rental Anticipated 12/66	700 / mo.
Total Rental Reduction	3292 / mo.
Punched Card Operator Salaries	
(3 operators @ 600/mo.)	1800 / mo.
Total Reduction	5092 / mo.
B. Increases in Existing Costs	
Computer Rental	4284 / mo.
Computer Operator	600 / mo.
Computer Programmers (2 @ 800/mo.)	1600 / mo.
Total Increases	6484 / mo.
Net Additional Cost	1392 / mo.

\* Assumes keeping keypunches, verifiers, one sorter, interpreter.

DWP/clw



# INTEROFFICE MEMORANDUM

DATE March 15, 1966

SUBJECT Conversation with Wes Clark

TO Ken Olsen

FROM Mort Ruderman

In talking with Wes Clark, during his recent visit, he seems agreeable to a retainer arrangement. As he undoubtedly spoke with you, he will be submitting a proposal to you in the near future.

For your information, in our discussions, Wes informs me that Jordon Baruch of BB&N is leaving to set up a hospital computing division for General Electric Corporation in Watertown, Massachusetts. The whole story now fits together. He didn't, however, indicate whether Jordon or G. E. were interested in having him as a consultant.

Also, an interesting note, the "program console" that is presently being designed in a macro-modular configuration, will probably go out on bid by Jerry Cox. Wes indicated that McDonnell Aircraft might very well build these with their integrated circuit packaging. I certainly will inquire from Jerry of the possibility of DEC doing this "program console". I am very interested in learning more about this and hopefully making this available in the not too distant future.

MER/djc

DEC INTEROFFICE MEMORANDUM

TO: K. Olsen

FROM: J. Smith

DATE: March 14, 1966

SUBJECT: Fred Barry, Consultant

My initial reaction to Mr. Barry was favorable from a general viewpoint. He has a good over-all feel for manufacturing processes and controls. In the other direction, I do feel his value will be definitely limited by his inexperience with computer manufacturing processes, controls and techniques.

I spent a great deal of time with Mr. Barry and was quite open, explaining our problems and the proposed solutions either now in process or planned for the near future. He was supplied with copies of proposed changes in existing systems, procedures and reporting formats. I did this to assure that solutions we are currently working on and plan to introduce would not be duplicated in his report. The last consulting report (Chet Gadzinski) I read consisted mostly of changes that had already been proposed and were either rejected as impractical or accepted and in the process of formulation.

With this in mind, I feel we should thoroughly review Mr. Barry's report to assure his proposals encompass new ideas on areas of current or future problems.

I feel the value of a consultant can be very valuable if the timing is right, and he has the right experience. In my particular area, we have so many changes now in process and proposed changes to work out with Dave Packer, it may be more practical to wait until my production control man is hired. As to Mr. Barry's qualifications, we should have a better idea once we review the contents of his report.



## INTEROFFICE MEMORANDUM

DATE March 14, 1966

SUBJECT BOB PATE

TO K. H. Olsen

FROM Bob Lassen

I am becoming increasingly pleased with the progress of Bob Pate.

In addition to his assignment in Training, I have given him additional responsibilities in Personnel Administration to round out his usefulness to the company.

Although he has some limitations (as we all have), he has assumed these responsibilities with enthusiasm and has done a thorough job. He is particularly good at getting things done. Applicants have been impressed with Bob, and he has done a good job of selling the company. In addition, he has done well in bringing applicants into the company and arranging their interviews.

Recently he developed a course for wiremen which will help raise their level of electronic education and their future usefulness to DEC. He's a good systems man, and I feel can be useful in records administration. Although he doesn't appear to be overly imaginative, he does have good ideas.

His weaknesses, as we know, are the "military approach" to problems, somewhat quick tempered and on occasion a bit stubborn.

Although he probably will never be a well rounded personnel man, he is very useful to DEC as an administrator. I do not feel he would be a good Plant Maintenance man although he certainly could do many of these tasks.

I think prior to his taking on additional responsibilities he was not kept busy, and therefore was not completely challenged. I have loaded him with a variety of work, and he has come through nicely.

He runs the Training Department with a minimum of fuss and is currently developing more flexibility to provide training for Field Service. In addition, he is quite excited about checking out PDP-8's as a training aid.

RTL/jfr

R. Olsen



INTEROFFICE  
MEMORANDUM

DATE March 14, 1966

SUBJECT Purchases of Supplies, Materials, and Services

TO Cost Center Managers

FROM Harry S. Mann

The purpose of this memorandum is to remind all supervisors that they must not commit the company for obligations to pay for materials, services, or supplies without a formal Purchase Order being issued. Purchase Orders, in turn, are issued only on the basis of requisitions which have been issued and approved by proper supervisors and charged to their own cost centers.

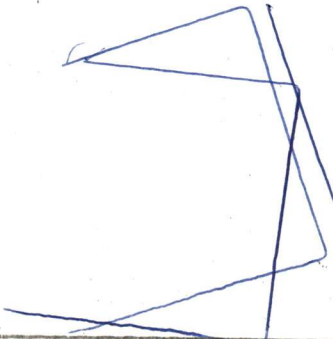
Although this procedure has been in effect for a long time, it has not been consistently followed. Recently we received a bill for a service costing approximately \$1,000--this particular case had been authorized by a supervisor some months ago. When the invoice finally was received, it was acknowledged that the company had this obligation and had to pay for it. At the same time, none of the supervisors felt that the service was of any value to them and, hence, they were unwilling to pay for it.

We must prevent recurrences of this kind of authorization and the long-standing procedure, if carefully followed by all employees, will prevent recurrences of this type.

Thank you for your cooperation.

*Harry S. Mann*  
Harry S. Mann

HSM/clw





## INTEROFFICE MEMORANDUM

DATE March 14, 1966

SUBJECT PLANT LAYOUT - REPLY TO YOUR MEMO OF MARCH 11th

TO Ken Olsen

FROM Loren Prentice

Large sections of the plant are already layed out by numbered posts and I propose that we continue this system as it is approximately 50% complete at this time (building #5 and the drafting floor of building #4 are already numbered). These have been used by the guards to designate trouble spots for repairs on the following day.



**INTEROFFICE  
MEMORANDUM**

**DATE** March 14, 1966

**SUBJECT** Multiplexers - Teradyne Transistor Tester

**TO** Kenneth H. Olsen ✓  
Harry Mann

**FROM** Henry J. Crouse

**cc:** R. Best  
K. Doering

Dick, Klaus and I discussed the need for the multiplexers on the Teradyne Transistor Tester and concluded from the projected transistor schedule, the overtime requirement and the downtime of the DEC multiplexers that this capital purchase is necessary to support Production needs.

  
Henry J. Crouse



# INTEROFFICE MEMORANDUM

DATE March 11, 1966

SUBJECT Space Requirements

TO Ken Olsen  
cc: N. Mazzaresse  
L. Prentice

FROM Ed Harwood

We plan to ship the first five PDP-9's during November. To accomplish this we must have our space made available sometime in May. We need approximately four months to get the line operational which will allow us to start the first lot down the line by September 1st.

The PDP-9 line will include assembly and testing of the C.P., IO, and memory frames. Also included will be assembly and testing of the console and reader/punch package. To perform all these functions at the proposed rate of five per day will require approximately 9,000 feet of space, plus 1,200 feet of storage area.

The peripheral line should be identical and require pretty near the same amount of space.





# INTEROFFICE MEMORANDUM

DATE March 11, 1966

SUBJECT Power Control Panels

TO Ken Olsen  
cc: N. Mazzaresse  
M. Ford  
J. Jones

FROM Ed Harwood

At this time we have fourteen different types of power controls available for our designers to choose from. There is a good case presented for the need of every one of these types, with  $\frac{1}{2}$  of the types needed for the 240 volt, 50 cycle version of the 115 volt, 60 cycle type.

This brings the number down to seven discrete types of power controls.

Some of the reasons put forth for the differences are:

1. Don't like to run 115 around to turn on remote supplies.
2. Need two steps in equipment such as drum and displays.
3. Need two steps with more than one input for such things as door interlocks.
4. Need more filtering included on power control panel.
5. Should break both sides of line.
6. Need different breaker sizes.

I am considering these reasons and will make a recommendation within a week.



# INTEROFFICE MEMORANDUM

DATE March 11, 1966

SUBJECT PROFESSIONAL RECRUITING

TO K. H. Olsen  
H. E. Anderson  
S. C. Olsen  
N. Mazzaresse  
W. Hindle  
R. Best  
H. Mann  
T. Johnson  
J. Jones  
M. Ford

FROM Bob Lassen  
  
L. Portner  
M. Ruderman  
L. Hantman  
E. De Castro  
W. Long  
E. Harwood  
L. Prentice  
J. Atwood

In order to improve our technique for attracting senior technical people I would like to initiate the following procedure:

1. Each morning a member of the Personnel Department will distribute resumes which I feel are applicable to your current needs (or possible future needs). A copy of the resume will be kept in a follow-up file in the Personnel Office.
2. I would urge you to consider the resumes as quickly as possible and immediately notify me of your interest in seeing the applicant. Good people are available for only a very short time.
3. If the applicant of interest is a senior man, I will ask him to telephone you directly so that you can discuss the assignment with him prior to his visit. This will help to determine both your further interest and the applicant's desire to visit the plant. You can then either make arrangements to see the applicant personally or you can turn the arrangements over to me indicating the names of others in the company with whom you wish the applicant to meet.

I suggest that you ask your secretary to set up a resume follow-up file so that she will be able to recognize applicant telephone calls that should be referred directly to you.

4. I would also suggest that you set aside a portion of your time for senior applicant telephone interviews.

Senior applicants are more easily attracted if they are able to first discuss the job with the manager who is directly responsible for the assignment.

Many larger companies use this personal approach, and I feel that it would be wise to follow suit. As you know, it will take an all out effort to attract the calibre of people we want to bring into the company.

I do not feel that it is necessary to use this approach for junior level people except when we make special efforts to attract outstanding students.

Lastly, I urge all of you to ask your people to actively refer technical people (sales engineers, applications engineers, circuit and logic design engineers, programmers, etc.) to us whenever possible. 50% of all professional people in the company were brought in as a result of a referral.

RTL/jfr



INTEROFFICE  
MEMORANDUM

DATE March 11, 1966

SUBJECT Massachusetts Sales and Use Tax - Effective April 1, 1966

TO Harry Mann  
Ken Olsen ✓  
Henry Crouse  
Ed Simeone  
Bob Dill

FROM Bruce Garvin

As far as we can now determine, the new Massachusetts Sales and Use Tax will only affect us in respect to stationery, supplies, and office furniture and equipment. Under these circumstances, we should make every effort to confirm orders and have invoicing made to us prior to April 1 on these items.

There is still a degree of uncertainty on the part of the people who have been following the many hours of debate on the Sales Tax as to its full meaning. However, Henry Crouse and I are going to attend a seminar on Monday, March 14 conducted by the Massachusetts Tax Department which should further clarify the situation.

Should there be any changes in respect to our interpretation, we will prepare and modify instructions.

BG/clw



# INTEROFFICE MEMORANDUM

DATE March 10, 1966

SUBJECT

TO Ken Olsen

FROM Ted Johnson

We have a real possibility for developing an extremely large PDP-9 account with Stromberg Carlson in San Diego for a communications system they are developing for American Airlines. 3C is currently making a deal with them for 116s. Sid Halligan of 3C apparently has a good friend in Mr. Bibby (Stromberg Carlson in Rochester). Mr. Bibby is, I believe, head of marketing and formerly President of Remington Rand.

Dick wants help in Rochester and will call Ken Olsen Thursday morning. I propose the following:

- (1) That Ken call Mr. Bibby as soon as possible to arrange a high level presentation.
- (2) That Dick Musson, Nick Mazzaresse, John Jones and, possibly, Ken Olsen visit next week to see what we can work out. Dick will explain the potential.

TJ/mr



# INTEROFFICE MEMORANDUM

DATE March 10, 1966

SUBJECT BUDGETING CONTROL OF PERSONNEL REQUESTS

TO H. Mann

FROM Bob Lassen

cc: K. H. Olsen ✓  
R. Dill  
P. Chambers

In order to tie in personnel requests to approved departmental budgets, I propose the following procedure:

1. All requests for personnel, including permanent, temporary, part-time, and contract people, must be initiated by the requesting department and approved by the appropriate department head or product line manager.

2. The request will then be forwarded directly to the Treasurer's Office for budgetary approval.

3. The Treasurer's Office will determine whether or not the addition to payroll falls within the approved budget and will notify the requesting department head accordingly.

4. Approved personnel requisitions will be forwarded by the Treasurer's Office to the Personnel Department for appropriate action.

This procedure will provide for more effective control of additions to payroll and our managers will know the rules.

I feel that many of our current open requisitions (although they are signed) have not been plotted against budgeted labor dollars. Therefore, I also feel that we should return all open

March 10, 1966

requisitions to the managers and instruct them to fill out the new form (see attached) and begin following the new approval procedure.

If this procedure meets with your approval, I would be happy to initiate it immediately.

RTL/vws

REQUEST FOR PERSONNEL

No. Required: \_\_\_\_\_ Male  Female

Position: \_\_\_\_\_ Department: \_\_\_\_\_

Salary Range: \_\_\_\_\_ Job Classification \_\_\_\_\_

TYPE OF WORK: (Please check and underline where necessary)

PERMANENT

PART-TIME  (Indicate: Permanent or Temporary)

TEMPORARY  (Indicate: Co-op, Summer, Contract Employee)

If contract employee, how long? \_\_\_\_\_

JOB DESCRIPTION: (Please give us as much information as possible  
to insure proper selection)

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EDUCATIONAL REQUIREMENTS: \_\_\_\_\_

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EXPERIENCE REQUIRED: \_\_\_\_\_

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SPECIAL TRAINING REQUIRED: (Include office machines, tools, etc.)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

IS THIS REQUEST: AN ADDITION TO DEPARTMENT   
REPLACEMENT FOR TERMINATED EMPLOYEE   
REPLACEMENT FOR TRANSFERRED EMPLOYEE

PLEASE STATE WHY THESE PERSONNEL ARE NECESSARY (Including replacements):

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

WHAT WILL THEY BE DOING? \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

TO WHOM WILL THEY REPORT? \_\_\_\_\_

THE FUTURE PLANS FOR THESE PERSONNEL: \_\_\_\_\_

\_\_\_\_\_

APPROVAL ACTION

REQUESTED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
(Department Supervisor)

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
(Dept. or Product Line Manager)

BUDGET REVIEWED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
(Treasurer)

DISAPPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

*K Olsen*

INTEROFFICE  
MEMORANDUM

DATE March 9, 1966

SUBJECT Plans for PDP-8 Memory Cost Reduction

TO K Olsen  
N Mazzaresse  
M Ford

FROM E De Castro

I am currently investigating two areas for possible reduction in the cost of the PDP-8 memory system. These are repackaging of the stack and elimination of the balun drive. To some extent these two steps are interdependent as the use of baluns would make the proposed new package quite unwieldy but the new package should reduce lead lengths enough so that the baluns are unnecessary. Preliminary experiments have shown that the system will operate without baluns but the noise level is increased and thus the operating margins are poorer. I suspect that the shorter leads and perhaps one balun for an entire axis will reduce the noise to an acceptable level. The new stack package will be made up with FLIP CHIP boards on both ends and thus it will fit directly into our standard mounting panels. The FLIP CHIP cards will contain diodes and will be attached to the stack by the same method used to interconnect planes. Both of our current vendors, EMI and Ferroxcube have been asked to quote on this package. They both feel that it will provide substantial savings and will make a proposal within the next two weeks.

E DeC:ASJ

**dec** INTEROFFICE  
MEMORANDUM

**DATE** March 7, 1966

**SUBJECT** Production Reports

**TO** Ken Olsen  
Dave Packer

**FROM** Maynard Sandler

Production reports should be part of a total systems plan for the gathering, organization, and presentation of information to management for more effective decision-making.

The management of manufacturing embraces:

The **NEED** for - statements of requirements, as in sales forecasts.

The **PLANNING** of - mechanisms by which needs are directed toward accomplishment.

The **CONTROL** of - reports which measure the degree and detail of accomplishment. Quantities, times, and dollars are the basic terms in which production comparisons are made.

NEEDS

Manufacturing is carried on to meet the requirements of a Sales Plan or Forecast. Our Product Lines provide a monthly requirement to each manufacturing group delineating quantity of product needed for sale and time of need.

Monthly: Product Line Requirement Schedule

A complete listing of quantity of product by type and noting delivery dates for each manufacturing group.

A summary report to management showing totals by group by type and valued at cost and/or sales value.

PLANNING

Manufacturing plans must be made to provide for and direct manufacturing facilities and capacities to the accomplishment of the Product Line Requirement Schedules.

Monthly: Each Production Control group must provide to Purchasing net material requirements (Materials explosion minus balance-on-hand = net required) with indications as to date due.

A summary report to management showing totals by material class by group by date and valued at cost.

Each Production Control group should measure Labor

Hours Needed in terms of labor hours by operation versus capacity available.

A summary report to management showing totals by group by date and pointing up over or under capacity.

Monthly: Each Production Control group should prepare a Sequence and Due Date Schedule showing Date to Stock, Date to Test, Date of Issue. Each Product Line should receive the Schedule of those items planned to meet that Product Line's requirements.

A summary report to management indicating whether or not Product Line requirements will be met.

### CONTROL

At the end of each month, management must have information as to measure of performance of actual versus plan.

Monthly: Each manufacturing group should provide a complete analysis of delivery versus orders.

A summary report to management indicating actual

- (1) Labor usage measured against Planned Labor Usage by operations class.
- (2) Due-Date Performance Analysis (CHART)
- (3) Lots Started, Not Yet Finished, by lot, to measure how long in production.

In order to keep production moving as planned, each production group manager should receive the following weekly reports:

1. Quantity of product finished
2. Quantity of product to test
3. Quantity of product started
4. Quantity of product in Assembly and in Test
5. Operations behind schedule
6. Material behind schedule

In order to keep production moving as planned, each production group should daily measure due-date status and movement of:

1. Quantity or Lots to Stock
2. Quantity or Lots to Test
3. Quantity or Lots Issued (Starts)
4. Expediting reports to Purchasing and other groups

Each manufacturing group should provide management a monthly summarization of Actual versus Plan by product type. Cost Accounting should provide management with dollar summaries and measures of actual performance versus planned performance such that meaningful management decisions can be made and effective management action can be taken.

Maynard Sandler

ecc



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Maynard Sandler

ecc





# INTEROFFICE MEMORANDUM

DATE March 7, 1966

SUBJECT

TO Ken Olsen

FROM Jack MacKeen

In line with your memo of February 10, I have the following suggestion:

Place the Mechanical Engineering Department on a basis similar to that of Technical Publications, i.e., that they have to sell their services, as you mentioned at the recent tea which we had.

On a recent project (2120 PPG), I required the services of the Mechanical Engineering Department. I had fairly definite ideas of panel layout, component arrangement and cabinet configuration. Yet when I went to Mechanical Engineering, I could get neither an estimate of the cost of developing the new system nor an estimate of what manufacturing costs might be for a specified number of systems. This type of cost information would have been and is important in design compromises and trade-offs.

I would like to be able to go to the Mechanical Engineering Department with a reasonably definite set of specifications and have them bid on doing the job. They would provide me with their estimate of development costs and future manufacturing costs for a number of systems which I would specify. They should also be able to suggest a number of tentative trade-offs or alternatives which could reduce cost. Based on this data I could come up with the most economical system (mechanically) consistent with my design goals.

Such a system in Mechanical Engineering would require providing them with a history of cost data on which to base their estimates. I feel that the computerized accounting system or some system which could give fast returns, particularly in areas where costs are apt to change rapidly, would be of benefit for accurate costing.

CC: P. J. Greene

*Jack MacKeen*

DEC INTEROFFICE MEMORANDUM

TO: K. Olsen

FROM: J. Smith

DATE: March 4, 1966

SUBJECT: General Comments

PDP-8 production, both assembly and checkout, is moving according to schedule. We should have only the normal, production type problems on this product from now on. We will have no trouble meeting the dollar budget or present customer commitments.

PDP-7 production is still a little troublesome in the checkout area. I am very optimistic that the logic and circuit problems will be solved by the end of this month. We are currently running three (3) weeks behind customer commitments. The dollar budget is being met. The 7's should be running as smooth as the 8's next month.

The only option giving us trouble, at this time, is DEctape. All other options are being produced to schedule.

I am in the process of devoting more of my time to inventory control and cost reduction programs. I expect both W-I-P and finished-goods inventories to be within reasonable limits by the end of this month. We have assumed control of the parts-in-stock inventory this month. Initial investigation indicates this inventory can be reduced somewhat.

We are in the process of planning for the manufacture of the Linc-8.

We are confident we can meet all planned schedules and budget projections. Overall morale is high.



# INTEROFFICE MEMORANDUM

DATE March 4, 1966

SUBJECT Traffic Department

TO Frank Kalwell

FROM Harry S. Mann

As you know, I am strongly in favor of having a centralized Traffic Department for the reasons you mention in your preliminary graph on this subject. I feel, however, that your recommendations have not gone far enough to give us the centralized control and the streamlining of the operations that are possible.

## EXPORT DEPARTMENT

I feel that this work should be handled by the Traffic Department. It is true that some special procedures are required for foreign shipments that do not apply to U. S. shipments. These systems, however, are not very complicated and could be learned in a reasonable time by any intelligent person. To leave this sort of thing out of the Traffic Department is to divide responsibility and to continue to have some fragmented pieces of the organization. Possibly Brad Towle, who has this special knowledge, might be a candidate for the Traffic Department. If he were not available for that purpose, I am sure that he could teach someone his parts of the work in a very short period of time.

## CRATING

You have suggested that all packing and crating would be done by other groups before material would reach the Traffic Department. I feel that this is wrong and that the work should be done in the Traffic Department thereby giving an opportunity for a double-check on the count and type of material being shipped to the customer. We have had frequent problems where the customer has claimed shortages on material which we, in turn, have had to fix up with additional shipments. I often wonder how many over-shipments have been made that have not been reported back to us by the customer.

If the stockrooms and assembly departments were to bring their material to Traffic together with the appropriate paper work, the Traffic Department could then re-check before packing the material. This would not only take care of double checking items and getting counts but would also place responsibility for proper packing in the hands of one group. I am not sure whether we have had damaged shipments claims in the past but this is frequently a problem in many companies. By putting this under the Traffic Department, there is one person who becomes knowledgeable as to what packing requirements are and can see that those rules are enforced.

March 4, 1966

PARCEL POST

I believe that this operation should also be included in the Traffic Department. By having the Parcel Post handled through a central spot, we could use a regular postage meter, weigh the material, and handle it all out the back door. Frequently, as you know, Parcel Post is not necessarily the best way to get shipments made. The Traffic Manager could pre-determine this to be sure that it is being handled properly.

MODULE SALES

You indicated that routing, etc. for modules should be specified by the Module Group. If the customer has specified some particular routing, there is no reason why this can't be indicated on the papers that go to Traffic. I think the Traffic Department should handle the whole job.

COMPANY TRUCK

You suggest that we need a company truck to handle this operation. Probably experience would show that this is correct; on the other hand, I think we are putting the cart before the horse by recommending it initially. I feel that we should first work with common carriers, keep records of the amount of money we spend for local deliveries, and then prove to ourselves that it would really be a cost-savings by having our own truck.

PERSONNEL

You talk about the people needed to do this job--generally, they sound reasonable to me. On the other hand, there are people in the company performing these functions at the present time. I assume, therefore, that we would be able to transfer people from other jobs to be assigned to this work and not make this an addition to the payroll.

  
\_\_\_\_\_  
Harry S. Mann

HSM/clw

CC: K. Olsen ✓  
S. Olsen  
T. Johnson



## INTEROFFICE MEMORANDUM

DATE March 4, 1966

SUBJECT POSSIBLE SPACE AVAILABLE - REPLY TO MEMO OF MARCH 1/66

TO Ken Olsen

FROM Loren Prentice

I would suggest the following changes:

Item #5 be considered as a temporary move and adventually the PDP-6 people move to the second floor of building #11 or to building #8.

Harry Mann's area be either in the 4th or 5th floor of building #4 as I believe these are the only floors with integrated space large enough to accommodate his operation and give him reasonable expansion for the future.



# INTEROFFICE MEMORANDUM

DATE March 3, 1966

SUBJECT TRAFFIC DEPARTMENT

TO Ken Olsen  
CC: Stan Olsen  
Harry Mann  
Ted Johnson

FROM Frank Kalwell

The enclosed preliminary draft covers my recommendation for the new "Traffic Department".

If you wish, I can schedule this on next week's Works Committee meeting.

*Frank Kalwell*

## OUTLINE

### I. INTRODUCTION

#### A. Definition of "Traffic Management"

1. Proper performance of the traffic function lies in the area of routing shipments of raw material and other goods in order to obtain the maximum of efficient service at the lowest possible cost. Traffic management entails the selection of routes, negotiation of rate and classification changes, design and use of the right kind of shipping containers, packaging and labeling shipments, proper material handling methods, strategic warehousing, and a host of other technical matters which are essential in order to obtain the maximum value in transportation.

### II. OBJECTIVES OF CENTRALIZED SHIPPING AREA

- A. To insure more rapid, efficient and economical shipments than are presently being attained.
- B. To provide tighter security on all outgoing shipments.
- C. To maintain accurate records of all shipments made, providing us with proof of delivery.
- D. To supply a centralized area for loss and damage claims.
- E. To set policies concerning methods of shipment; for example:
  - Under 20 lbs. - Parcel Post
  - 20 to 75 lbs. - Railway Express
  - Over 75 lbs. - Truck or Carloading CompanyFor expedited service, we will ship via Air Freight, Air Express, Air Parcel Post, as required.
- F. To provide auditing of all transportation invoices to insure that all shipments and charges are valid.
- G. To maintain customer goodwill by acting as a service group, keeping all areas posted on method, date, waybill numbers of shipments made.

- H. To provide for consolidation of shipments into truck-loads of literature, etc. from Maynard area and the establishment of special rates with one trucking firm based on a substantial volume.
- I. To provide for improvement of "in transit" packaging for reduced loss due to damage.

III. ORGANIZATIONAL DIVISION (See attached - Page -2A-)

A. Required Personnel

1. Shipping

- a. One routing clerk to check packaging of parcels, computers, literature, etc.

2. Traffic Department

- a. General traffic manager to oversee performance of the department.
- b. Traffic assistant who determines rates, assigns waybills, notifies carriers, etc., and negotiates with carriers for "special deals".

3. Transportation

- a. One company station wagon (Econoline) with full time driver to shuttle passengers to airport and make module deliveries in the N. E. area. Transportation is also for customers, rush shipments to Canada, plus handling the delivery of subcontracted items to vendors for Purchasing.

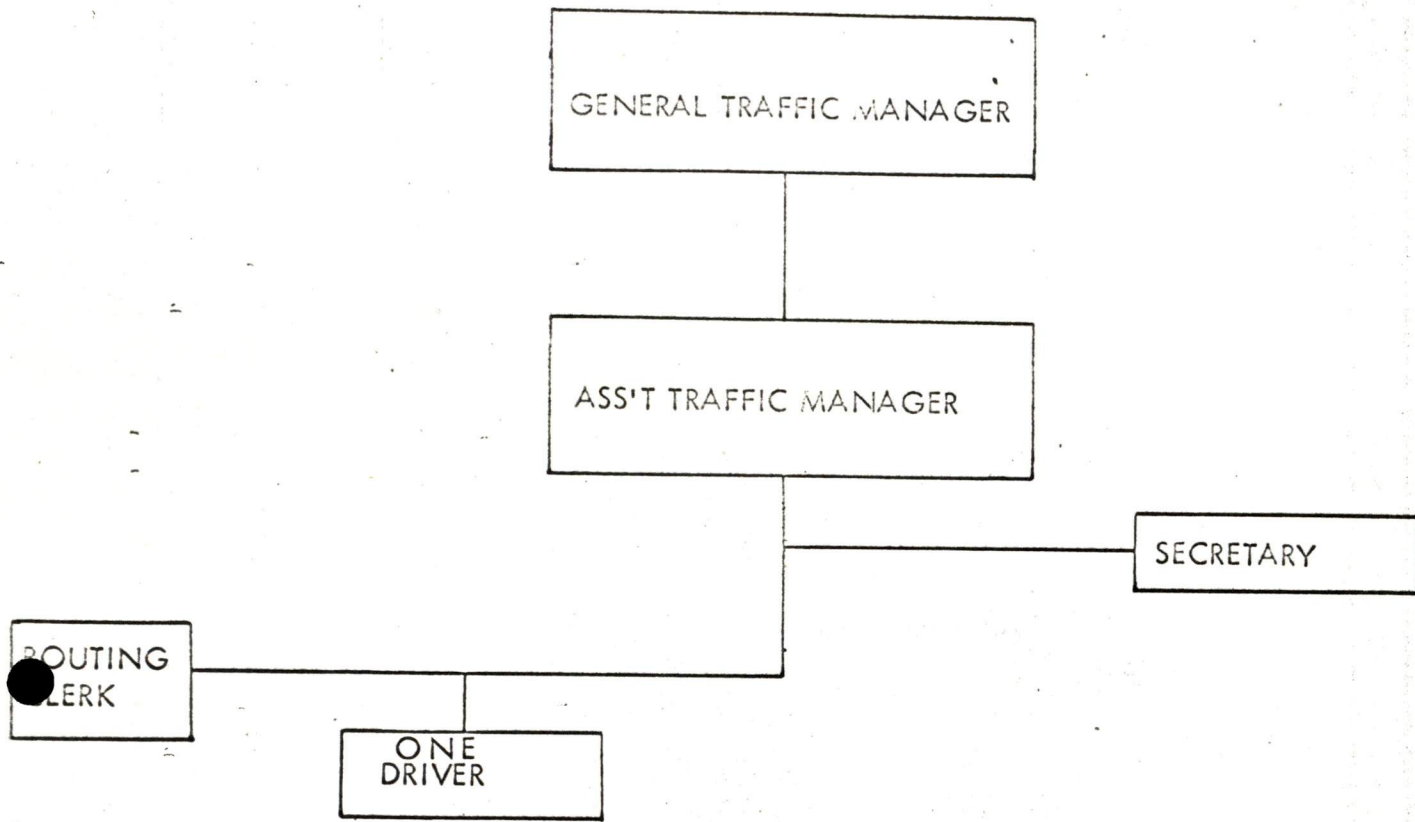
IV. FUNCTIONS OF OTHER DEPARTMENTS IN REGARD TO TRAFFIC DEPARTMENT

EXPORT DEPARTMENT:

Transportation of goods in Import or Export Trade is more complex than Domestic shipping and requires additional training and experience, so I propose we continue handling shipments abroad as follows:

All foreign shipping is centralized in our Export Department (Brad Towle). Computers, modules, Field Service parts, and literature are packed by the responsible product line and notice of shipment is given to the Export Department. Special documentation, as required by the U. S. Department of Commerce and each foreign government customs, are





ORGANIZATIONAL DIVISION

prepared and given to the Traffic Manager. The shipment will be checked for accuracy and marked according to customer instructions. The Traffic Manager will also be responsible in making arrangements for local pickup and delivery to a freight forwarder at Logan Airport.

The freight forwarder acts as our agent in presenting documents to the Collector of Customs and advises which foreign carrier provides the best schedule for delivery to the subsidiary, or customer.

All computer shipments are pre-arranged because of the space requirement on the airplane. The forwarder advises which flights are available and the Export Department determines which carrier is to be used, subject to approval by the Traffic Department.

The Export Department is advised of all shipments and the forwarder's invoices (includes air freight) are always checked for accuracy by Brad Towle.

The responsibility for the freight forwarder must remain with the Export Department because of the documentation requirement by the U. S. Department of Commerce. Changes in the documentation can be made by the forwarder to conform with any regulation or licensing policy set forth by the Department of Commerce when the documents are presented to the the Collector of Customs at Logan Airport.

SMALL COMPUTERS:

Tom Whalen insures proper notification is made to the Traffic Department so shipping arrangements, proper crating, etc. can be made in time by the Small Computer Group. The crating people then deliver the computer with proper paperwork and authorization to the Routing Clerk. The shipping authorization enables the Routing Clerk to check the number of crates, whether crates will withstand method of shipment, proper label and waybills assigned, then insures the carrier pickup of shipment on schedule and, if possible, combines other shipments to that respective area. The Traffic Department arranges transportation with carriers several days and, in many cases, weeks in advance. Close

coordination with Computer Administration is required in order to reschedule traffic arrangements in the event of possible delivery reschedules.

LARGE COMPUTERS:

J. Solito to follow same procedure as for Small Computers.

FIELD SERVICE:

Presently all supplies to service our equipment are shipped by Field Service. Component orders are also shipped from this area. In certain cases, air shipment can be justified due to the fact that down time for customer is extremely costly. All shipments to be made are to be delivered to the Routing Clerk (Building #5 Dock) by Field Service stock man, properly packaged. The Routing Clerk then ships the most economical way and notifies Field Service by sending through a copy of the shipping authorization.

PROGRAMMING:

All matter shipped is forwarded to the Mail Room for Parcel Post shipment. If weight exceeds Parcel Post requirements, the Mail Clerk will forward the parcel to the Traffic Dock (Building #5).

ADVERTISING:

All literature is delivered to the Traffic Dock (Building #5), packaged and labeled properly. The Routing Clerk than combines all literature shipments along with modules, computers, etc. No advertising matter will be shipped via AIR. The Traffic Manager opens and spot checks cartons daily to insure authorization coincides with matter being shipped.

PURCHASING:

Mode of incoming shipments will be determined by the Purchasing Department with the assistance of the Traffic Department shipping instructions. The company truck and station wagon will be maintained by our Traffic Department, to be used in delivery of sub-contracted items to Purchasing vendors. All outgoing rejects being returned to our vendors are packaged and delivered to Building #5 Dock.

MODULE SALES:

Due to the fact that the majority of DEC customers specify the mode of transportation, any deviations to their method requires authorization by the Traffic Manager. With a possible relocation of Module Sales next to the proposed Traffic Dock (Building #5), the outgoing traffic of modules would pose no problem, due to the fact that module shipments are completely packaged, labeled, waybills made and automatic packing slips supplied.

TRADE SHOWS:

Tim McInerney will coordinate, with the assistance of the Traffic Department, all shipments involving trade shows.

SPECIAL SYSTEMS:

The Special Systems Group will arrange the packaging of machines with Small Computer Administration and Module Sales in the case of special modules and current drivers.

PERSONNEL:

Traffic Department will arrange all transportation in moving employee's belongings in relocation and transfer of personnel.

V. LOCATION OF PROPOSED TRAFFIC DEPARTMENT:

- A. Building #5 - where the present Model Shop is located so insurance of all shipments made leave via Building #5-3rd floor dock only. No shipment can leave DEC without the attached shipping authorization. I feel that the Traffic Department should be under a separate division, not directly under the departments mentioned. In this manner, preferential treatment would be alleviated which could possibly exist if traffic were controlled by various product lines. The Traffic Department could then concern themselves with getting the goods out the fastest, most economical way.

The attached sketch indicates the flow of all outgoing material. (Page -5B-)

digital

SHIPPING AUTHORIZATION

EQUIPMENT CORPORATION  
MAYNARD, MASSACHUSETTS

SHIPPING AUTH. NUMBER

DEC. ORDER NO. CUSTOMER ORDER NUMBER ACCOUNT NUMBER

INVOICE TO

SHIP TO

REASON FOR SHIPMENT 1- CONSIGNMENT 2- CREDIT 3- SALE 4- REQUESTED SHIP VIA 1- PICKUP 2- PARCEL POST 3- REA EXP. 4- UPS 5- DEC TRUCK 6- BEST WAY 7- MATERIAL CLASSIFICATION 1- UNCLASSIFIED 2- CLASSIFIED

TRANSPORTATION TERMS 1- PREPAY 2- COLLECT 3- PREPAY & CHARGE 4- FREIGHT ALLOWED 5- SEE REMARKS FOB 1- DESTINATION 2- SHIP. POINT EST. VALUE AMOUNT INSURED SHIPPING CHARGES

REMARKS GROSS WEIGHT INSURANCE CHARGES WAYBILL NO. OTHER CHARGES NO./TYPE OF CTNS. TOTAL TRANS. CHARGES

AUTHORIZED BY ORIGINATED BY DEPT. DATE DATE SHIPPED SHIPPED VIA

Table with columns: ITEM, QUANTITY, UNIT OF MEASURE, PART NUMBER, REV., DESCRIPTION, UNIT PRICE, TOTAL AMOUNT. Includes a large text block: PLEASE SIGN \_\_\_\_\_ DATE \_\_\_\_\_ AND RETURN TO TRAFFIC DEPARTMENT DIGITAL EQUIPMENT CORPORATION 146 MAIN STREET MAYNARD, MASSACHUSETTS 01754

DISTRIBUTION: Traffic Dept.(original) - white  
Customer (packing slip) - pink  
Accounting - (billing) - yellow  
Branch - Info Copy - blue  
Requisition - Info Copy - amber

TOTAL THIS SHIPMENT

TRAFFIC BLDG.  
DOCK 5

CONVEYOR

- up
- air exp
- truck
- p.p
- other

all dept. shipments

packaging work-bench    packaging work-bench    packaging work-bench    telephone (hot line)

teletype

MODULE SALES STOCK ROOM

FLIP CHIP & SYSTEM MODULES

PACKAGING TABLE

power supplies and mounting panels

traffic dept.  
routing clerk

corrugated paper storage area

Reserve Bins - Pre-orders  
Orders awaiting license etc.

cabinet for repairs and rejects

OUTGOING SHIPMENTS

- PURCHASING DEPT
- EXPORT DEPT
- SMALL COMPUTER
- LARGE COMPUTER
- PROGRAMMING
- ADVERTISING
- MODULE SALES
- TRADE SHOWS
- FIELD SERVICE
- SPECIAL SYSTEMS

50'

PROPOSED SHIPPING AREA

VI. FINANCIAL HISTORY

- A. Fiscal 1965 - Freight - Out Costs..\$46,816.00  
Freight - In Costs.. 48,182.00  
\*Postage..... 60,253.00

\*An estimated 50% of postage can be attributed to outgoing parcels, such as Decus, Module shipments, rejects to vendors, Field Service, etc.

Estimated total cost of transportation  
Fiscal 1965.....\$125,125.00

- B. Estimated savings (per fiscal year) by adding Traffic Department..... \$ 31,000.00 (25% savings)

- C. Estimated cost of new Traffic Department (per year)

(Includes additional personnel, postage meter, labeling machines, benches, crates, etc.)  
\$ 25,000.00

VII. SUMMARY

In order to set up a centralized shipping area for all outgoing material, the use of Building #5 Dock next to existing Model Shop is required. Only in this manner can we accomplish and obtain the maximum value in transportation; yet maintain a minimum amount of handling.



# INTEROFFICE MEMORANDUM

COMPANY CONFIDENTIAL

DATE March 2, 1966

SUBJECT Minutes of the Eighth Disc Committee Meeting, February 24, 1966, 1:00 P.M.

TO Committee Members and Attendees

FROM S. Lambert

PRESENT: K. Fitzgerald, P. Backholm, L. Prentice, E. DeCastro, G. Bell, K. Olsen,  
D. Wardimon, D. Nevela, S. Lambert

Presiding Chairman was Ed DeCastro

Recording Secretary's report:

The minutes of the previous meeting required correction on the New Paper Tape Reader Review. The cost of the present reader tray catches is \$70 per pair. Vacuum formed covers would be approximately \$6 - \$7.

Old Business:

## PROCESS FLOW CHARTS

Meeting Procedures - Steve Lambert reviewed a memo dated February 7, 1966 pointing out how previous meetings have been conducted. He indicated that the sixth committee meeting was conducted according to the regulations set forth in the memo. Ed DeCastro was presiding chairman at that time. As the result of proper conduct, the meeting lasted 45 minutes and the material covered was more extensive than other meetings lasting 3 hours. However, the seventh committee meeting reverted back to a lack of organization.

Committee Name - Steve Lambert suggested that we change the name of Disc Committee Meeting to a New Products Review, Evaluation or Approval meeting, due to the fact that DECTape and magtape and paper tape reader have been the main subjects discussed. Steve also suggested that other informal meetings be set up called Engineering Brainstorm Meetings where the outcome of these meetings would be no decision but a documentation of facts. These facts then could be presented to the New Products Evaluation Committee when a management level decision is required.

## NEW PAPER TAPE READER REVIEW

Action #1 - Jim Jordan and Ken Fitzgerald went to the plastic molders to find out the molding cost and mold construction. Ken Fitzgerald indicated the cost would be less than \$1,000 for tooling charge. He also indicated that we could make the first mold and within a week or two have a sample plastic cover which would bring the tooling costs down further.



Action #2 - Ed DeCastro indicated the construction request for the six prototype units has been enacted as of 2/25/66. The units will be compatible to either plastic or metal catch basins. We may have to go to an outside vendor to have the construction worked on on the prototypes.

Action #3 - Ken Fitzgerald indicated that there are 35 tape catches in stock which is approximately a two to three months supply. The building of more tape catches will be stopped unless there is a desperate need for building more. This is dependent upon the delivery of the plastic catch basins.

#### DECTAPE REVIEW

Action #1 - Dan Wardimon indicated that the proposal of the tape wear test must include the number of passes required by the tape over the head and guidance mechanism. Dan does not know what this number should be and is asking for information in this area.

New Business:

#### TU55 PRODUCTION PLANS

Ed DeCastro indicated that an integrated production and testing line will be set up for the TU55. The unit will be assembled to a certain degree and then with a special test setup, the assembly will be checked before further assembly. In this manner, if the units are waiting for heads or guides, the production line is not completely stopped. The sub-assemblies can still be made. Ed indicated that the testers required are component testers, tape head tester, torque tester. A possible torque tester can be bought from Waters Manufacturing in Wayland, Mass. Ed feels it will take at least a month to complete building a head tester. Another tester for motors and incoming inspection might be required, however, specifications and contract agreements may be all that is necessary to insure the quality of the motors. Another tester required is a trailing torque adjustment tester. Dan Wardimon indicated that there is a wide variation in the torque of the motors coming in. He indicated that the required minimum torque is 60 inch ounces at all points or 360° of motor rotation. The present tester only examines one point out of 360° and as a result, the minimum torque is not examined.

Action #1 - Dan Wardimon is to find out what is needed for the torque tests and what specs the manufacturer should be supplied to insure the quality of the motors.

Action #2 - Dan Wardimon is to make a line voltage variation test to see what percentage tolerances can be tolerated in the TU55.

#### DISC PROGRESS

Steve Lambert referred to his manpower request and schedules indicating a definite need for the assistance of a mechanical engineer. However, Ken Fitzgerald

has been too busy in the past three weeks to provide any effort on the Disc project. Steve indicated that the main problem in the disc system is the head gimbling device and that we should either buy an existing gimbling device or copy it, or possibly obtain a consultant who has worked in this area. Ken Fitzgerald should be able to provide a fixed head assembly with gimble by trial and error until we find a definite source of head and gimble. Steve has received further information on the laminated disc being developed by Custom Coatings. Roger Plourde of Custom Coatings has built a prototype disc and is quite satisfied with the results. He intends to show us these results within the second or third week of March. He pointed out that there are some flaws in the prototype but he is confident that he can solve these problems. Derrick Chin and Dick Best have been helping in the design of a read amplifier for the disc. Len Hantman and Steve Lambert have been working on a data format for the disc compatible to prior documentation.

Action - Steve Lambert is to write an engineering specification indicating all the parameters required by a head manufacturer for a flying head to the Digidisc specification.

Meeting adjourned at 2:30 P.M. Next committee meeting is March 3, 1966 at 1:00 in Ken Olsen's office.

Jim Hastings will take over the responsibility of recording secretary for all future disc meetings as of March 3, 1966.

If there are any errors or omissions in these minutes, please correct and send to Becky Lizotte.



# INTEROFFICE MEMORANDUM

DATE March 1, 1966

SUBJECT

TO

Ken Olsen

FROM

Arthur Hall

Apropos your concern with engineering training and supervision, some of the articles in my personal administrative file might be of interest to you.

Most of these articles have come from Machine Design Magazine and are 2 - 3 pages long. Virtually all of them are pertinent to problems I have seen at DEC or in previous companies for which I have worked. Let me know if you would like to see any of these.

AH/bwf

Enc.

ADMINISTRATIVE ARTICLES

- A1. Management of QC and Reliability
- A2. Project Engineering - Check List
- A3. Starting an Engineering Library
- A4. Arsenic and Red Tape
- A5. Engineering and Research Reports
- A6. Procedures Manuals
- A7. Research and Development Proposals
- A8. Technical Specifications
- A9. Engineering Technicians' Projects
- A10. Preparing a Design Handbook
- A11. A Checklist for Design Review
- A12. Planning the Engineering Office
- A13. Revitalizing the Engineering Organization
- A14. Engineering Training Program
- A15. Engineering Administration
- A16. A Program for Salary Rating of Engineers
- A17. Hiring Engineers
- A18. How Engineers Rate Company Communications
- A19. Engineering Departments Personality
- A20. Salaries for Engineers
- A21. What Management Expects
- A22. Drawing Control System

- A23. Product Changes After Design Release
- A24. Financial Planning and Cost Reporting
- A25. Pricing New Products
- A26. Auditing Product Programs
- A27. Managing Engineering and Research
- A28. Research Management - Part 2
- A29. Keeping Young Engineers
- A30. Organizing, Planning, and Budgeting the Research Program
- A31. Forecasting Profitable Products
- A32. Making Supervisory Decisions
- A33. How Well Are Engineers Utilized
- A34. Improving Engineering Productivity
- A35. Engineers, Deadlines, and Overtime
- A36. Marketing
- A37. Project Scheduling
- A38. On-Line Management Information
- A39. How to Write Effective Reports
- A40. Engineering Information Storage: Indexing vs. Classification
- A41. Follow-up Techniques for Successful Delegation
- A42. Developing Cost Estimates for Proposed Work
- A43. Using Outside Skills to Supplement Department
- A44. Individual vs. Group Approach to Creativity
- A45. Practical Solutions to Impractical Problems
- A46. Selection, Training and Motivating Engineers in Smaller Departments

- A47. Guarding Confidential Information
- A48. Use of Technical Services in New Product Design
- A49. Seven Ways to Inhibit Creative Research
- A50. Testing for Creativity
- A51. Patent Rights and Rewards
- A52. A Guide to Governmental Assurance Documentation
- A53. Can Trade Secrets Be Protected
- A54. Engineering Manpower Audit
- A55. Engineering Supervision
- A56. Appraising Managerial Talent
- A57. Identification of Parts and Drawings
- A58. Profit Improvement Program for Design Engineering
- A59. Evaluate your Engineers
- A60. The Search for Supervisors
- A61. Plan Ahead for Publication
- A62. What is the First Thing a New Technical Manager Must Learn
- A63. What's the Boss For
- A64. Peripheral Equipment Design & Application Check List
- A65. Blocks to Creativity
- A66. Simplified Network Planning Techniques
- A67. When PERT is Necessary
- A68. Functional or Project Engineering?

DEC INTEROFFICE MEMORANDUM

TO: K. Olsen

FROM: J. Smith

DATE: March 1, 1966

A new department should be established for the manufacture of electro-mechanical devices. This type of option has always been a problem and never makes the transition from Engineering to Production. By segregation into a separate department, the problem will become more obvious and readily definable. In time we may want to integrate certain segments back into the main flow of Manufacturing. Equipment involved would be as outlined below.

New Transport (DEC)

New Reader (DEC)

DEctape Transports

Drums

Discs

All other electro-mechanical options have been released to Production and do not have engineering type problems.

The Strate department should be a separate responsibility. It is more clearly associated with module manufacturing than computer manufacturing.