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Senate Hearings
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UNITED STATES SENATE

COMMITTEE ON RULES AND ADMINISTRATION

HEARING ON COMPUTER AND COMMUNICATIONS

SERVICE AND TECHNOLOGY

Washington, D. C.
December 8, 1982

MILLER REPORTING COMPANY, INC.
320 Massachusetts Avenue, N.E.
Washington, D.C. 20002
546-6666

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STATEMENT OF KENNETH H. OLSEN, PRESIDENT
AND CHIEF EXECUTIVE OFFICER, DIGITAL
EQUIPMENT CORPORATION

Mr. Olsen. Thank you, Mr. Chairman. We appreciate the opportunity to discuss this with you. *I would like to summarize my formal statement, and ask that the full text be inserted in the record.*
Being the first one today I think it falls on ~~my part~~ ^{me} to perhaps explain what this is all about, at least from my ~~narrow~~ ^{particular} point of view.

For many years I fought against using the words "office automation" because they intimidate people; they imply many things which aren't valid at all.

The Chairman. Can I interrupt you to say that that word "intimidation" is a very good word, and I think that is part of our problem around here in the Senate. People say we are going to put a computer in your office, and, all of a sudden, they are intimidated--what do you do with it, how do you work it, what does it do?

Mr. Olsen. I may not do a good job in explaining it, because we take ^{so many aspects of the technology} ~~it~~ so for granted, by now ~~that~~ ^{that} I may not ^{be able to distinguish the "novel" from the "familiar"}. But let me try, and then you interrupt and ask me anything you would like.

"Word processing" is another set of words that intimidates, of course, because they are just ~~strange~~ ^{unfamiliar}. *But let me give an illustration.*
In my office a few years ago, now quite a few years ago, if I had a number of memoranda to send to a number of people,

1 I would bring ⁱⁿ the dictating machine ~~it~~ in the morning, my
2 secretary would type ^{memos} them out; she would retype ^{them} ~~it~~, to cor-
3 rect the obvious things that I had mumbled or made mistakes
4 in, hand ^{them} ~~it~~ to me to go over once more. Then she would re-
5 type ^{them} ~~it~~, spend a long period of time at the Xerox machine
6 making copies, spend a long period of time typing envelopes,
7 and then put ^{them} ~~it~~ in the mail.

8 And even within the one town in which we are located,
9 it would often take two days to get ^{the memos} ~~it~~ delivered. With the
10 electronic word-processing and electronic mail, if I come in
11 with six notes in the morning and give ^{dictation} her the ~~it~~ tape, she
12 types it just once. It's on the ^{computer} ~~it~~ screen, and she edits it
13 and corrects it there. If there is something that I mumbled
14 too badly for her to straighten out, or something quite illo-
15 gical, or a strange word, she will pass a note to me or ask
16 me, and, as soon as it is correct, she can instantly mail it
17 to any part of the world. We have within the company 8,000
18 subscribers to the electronic mail system.

19 So if I sent six memos to fourteen vice-presidents, they
20 could readily be on their desks at 8:30 in the morning. You
21 can see some problems with this, ^{such as the temptation to over-utilize the system,} but ~~the advantage of~~ having
22 ^{correspondence} them there, delivered, ^{on the same day} ~~that time~~ as compared to two days later,
23 as it was a few years ago, ^{well,} you can see the enormous advantages.

24 Secretaries in the Boston area have been concerned about
25 the lack of satisfaction in their jobs. Sometimes the concern

comes about because of--^{such things as} ~~they think it's~~ making coffee; ^{but I believe} it's often really because of the long period of time they spend typing, Xeroxing, addressing envelopes--retyping, typing, and retyping. It is truly satisfying to a secretary, by 8:30 or 9 in the morning, to get fourteen copies of six notes out all over the world.

^{to your staff}
 Here's another illustration:
 The written testimony ^{for this hearing was} delivered last Friday. If I remember correctly, it was first written in Washington ^{on Wednesday evening,} edited in New Hampshire, grossly redone on Thursday by myself, ^{sant to} back ^{to} New Hampshire ^{where} it was corrected so it flowed correctly, and printed here in Washington. My part took ^{place} ~~very~~ on Thursday; it electronically immediately went to New Hampshire and it immediately went to Washington, and I think was delivered Friday ^{afternoon} ~~morning~~.

We take this so for granted, that I never even thought of mentioning it till it was pointed out to me.

This is what electronics means to us in an office.
^{I've mentioned that at Digital}
 We have ~~in our~~ ^{internally} company, an electronic mail system, ^{with} 8,000 terminals; many of these are duplicated in people's homes, so that at home they can empty their "mailboxes". They have a choice of emptying it ^{electronically} and "throwing away" the contents, ^{and} emptying it so they can preview it in the morning their secretary can do what she should do with it. They can enter memos at any time. Our vice president of engineering gets ideas in the middle of the night, and he will type them out

1 at 3 in the morning, then be able to sleep. When his memos
2 don't--.

3 The Chairman. That is something I haven't tried yet.

4 [Laughter]

5 Mr. Olsen. When his memos don't seem quite reasonable,
6 we look at the time at which he typed them; if it's 3 in the
7 morning, we understand that he wasn't quite awake.

8 But you can see how the flow of information is fast and
9 easy.

Where is the institutional benefit of the technology?

10 We do not argue for cost saving; it can be there, it may
11 be there. The main argument for use of electronics in the
12 office is ^{that} it makes better use of the time of those people
13 ^{who} ~~they~~ you can't duplicate or have more of.

14 And so the argument is: to make things easy.

At Digital,

15 [^] We don't have typewriters usually in the office. I saw
16 one secretary a few days ago standing on her tiptoes typing
17 on a typewriter on top of a file cabinet. It was used so
18 rarely that being on top of a file cabinet was good enough.
19 ~~for that~~. And things get typed usually only once.

20 You said many things; Senator Hatfield, that I was going
21 to say. But I would like to pursue your railroad analogy,
22 which is really very good. ^{The laws and regulations governing} ~~The railroads~~ ~~the law~~ standardi-
23 zed on the track, gauge, standardized on the coupling and
24 the signals; ^{this} ~~and~~ gave a lot of freedom to the individual
25 railroads, and a lot of good came as a result. And I would

1 suggest that you would want to maintain exactly that analogy,
2 because you don't want to force ~~any~~ ^{any one} Senator to do things the
3 way you do, or ^{be in a position to} force you ^{to do things} the way they do them.

4 I personally don't use a terminal; I ^{at} one time stripped
5 my electronic mail at home and got 25 yards of mail--that is
6 the last time I did it. I let the secretaries do it from
7 ~~then~~ ^{then} on. ~~my~~ Some people will do it that way and some will
8 use it personally.

9 The important thing is, many ^{activities} ~~characteristics~~ have to be
10 done centrally, ^{as} ~~like~~ with the railroad, in order to have them
11 accomplish the things that you outlined. The interchange
12 electronic mail has to be planned and done centrally; ^{but with} what's
13 done individually, you can tolerate large amounts of freedom.

14 Our first experience with electronic mail--it may be the
15 world's first experience--came with the ^{U.S. military} ARPA network, which
16 started in the late sixties. That network now has thousands
17 of users in the academic world, the military of course, and
18 I think 160 industrial companies are involved in it. We have
19 been close to it--they are mostly our computers--^{although not} ~~but not~~
20 ^{universally} ~~consistently~~. They have a mixture of terminal computers and
21 terminals of all kinds, and I think that is a good model.
22 There is free communications throughout the ^{is} country and ^{those} parts
23 of the world in that network. And it accomplishes all of the
24 things that you ^{in the Senate} ask for, and has done wonders in ~~both~~ science
25 ~~the~~ military, and in the academic world.

1 The detailed features that one would want ^{are} ~~is~~ something
 2 that takes discussion. There is electronic filing. I have
 3 had no paper files. I request that all memos just be printed
 4 again, because it is all filed electric^{onic}ally. Now, many fea-
 5 tures like this you may want to change.

6 The White House has our system for their word-processing
 7 ^{and} electronic mail. One of the features we normally sell is a
 8 calendar; if you want to have a meeting, the computer looks
 9 at people's calendars and finds an opening which is free for
 10 everyone and says that is when the meeting is. This was
 11 modified at the White House, because when President Reagan
 12 wants a meeting, everybody else's calendar gets changed. But
 13 there is freedom--the beauty of computers is their freedom.

14 The main point I would like to leave ^{you with} is the need for
 15 discussing these things in a way which makes them a help to
 16 the staff and the manager and the Senator ~~or whoever it is~~
 17 ^{the technology should} ~~one that~~ makes ^{the individual's} life more efficient, less frustrating, with
 18 much more free interchange of information, so everyone is
 19 more knowledgeable without the effort ^{traditionally required} ~~involved normally~~--and
 more satisfying to everyone involved.

21 And in these terms I think the whole project is one
 22 which will be received with open arms and one which will not
 23 have any negative reaction. Once it is used, as you well
 24 have pointed out, you can never go backward. It is the
 25 greatest thing for preachers, lecturers, politicians--speech

1 givers. And for those who are getting a little older, the
2 speech can be typed two[^]three times the size!

3 And the frustrating thing for most speakers is, after
4 they lay out an outline, retyping it. That, of course, is
5 done all automatically.

6 So it's all positive, and that is, I think, my main
7 point.

8 We have been involved in the very early word processing,
9 starting about 1960. A bit of history: word processing, we
10 believe, came from computer programming, ~~using a computer to~~
11 ~~edit programs in 1960~~ ^{Systems created to} ~~was~~ ^{were} used to write letters. We called
12 it then an expensive typewriter. And it grew from that.

13 The electronic mail came from ARPA. Their "mazer" is office ^{automation}

14 Together now we have between a million and a million and
15 a half terminals in the world, doing electronic mail and word
16 processing, probably by far the largest numbers. The academic
17 world, the military, the scientific, ^{community} ~~is~~ all using our compu-
18 ters. Every one of ^{Digital's} ~~our~~ computers has word processing and
19 electronic mail delivery with it. This has just overtaken
20 that outside world, ~~and~~ I think most of the theses in the
21 academic world are done ^{probably} with our terminals and word
22 processing.

23 The whole newspaper industry has changed. It used to be
24 mechanical, with people running around with sheets of paper;
25 now the industry is completely different in the last ten or
^{- - just}

1 fifteen years, ^{some new} where the functions ^{which we} discussed that ~~we~~ we
 2 use now have been ^{adopted} ~~taken over~~ by the newspapers. ^{A story} ~~so that~~ it is
 3 typed once on a screen, edited, automatically set in type,
 4 justified, ~~and~~ all the things that used to be done mechani-
 5 cally; ~~and~~ the office automation functions, ^{which} have changed that
 6 industry.

7 And we like to think we played a key part in that. - It
 8 is to the point where we are withdrawing from it because
 9 there is no more newspapers. ^{TR} And our enthusiasm is still as
 10 great as ever because there are so many more things to be
 11 done in the world.

12 With that, I would be happy to answer any questions.

13 [The following was received for the record:]

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1 The Chairman. Do you have any questions, Senator
2 Hatfield?

3 Senator Hatfield. No, Mr. Chairman.

4 The Chairman. Senator Hatfield's experience in this
5 whole area is much longer and deeper than mine, and I value
6 his statement here this morning, which I think does reflect
7 not only his personal experience, but what he hears from
8 other Members of the Senate. So it is of particular value.

9 One of the things, Mr. Olsen, that you said in your
10 statement was that you thought it was feasible to have sys-
11 tems designed from components from several vendors. Now,
12 from our point of view, and from the Committee point of view
13 in trying to manage this in some intelligent way, we have
14 some concern about multi-vendor systems, and with establish-
15 ing standards that are applicable to all components of that
16 kind of system.

17 Mr. Olsen. There have to be certain standards, well
18 thought out ahead of time so they ^{individual elements of a system} can communicate freely.
19 But even though we would like to sell it all, of course, be-
20 cause we think we do the best job, standards all the way
21 limit growth and development.

22 The Chairman. Standards, now, in what areas, to be a
23 little specific.

24 Mr. Olsen. If you standardize one system so everyone
25 ~~is going to~~ ^{must} use the same thing, and this is it, you then

1 limit the freedom which will improve things. If you pick one
 2 system, most Senators would choose that one, but the improve-
 3 ments, the developments, the future growth is going to come
 4 about with a maverick who wants to do something different.

5 ^{for example} Now, I don't think you want a full-page screen--most
 6 people we work with we think have full screen. ^{But} ~~now~~ that is
 7 a question that is unimportant; ~~but under force other than~~

8 ~~to put~~ a full screen, a half a screen; that's not a major
 9 issue. You want to give people the freedom; ^{you} see, if two
 10 people feel differently, that's unimportant. ^P They have to be
 11 able to communicate with each other. You can't compromise

12 on that. ^{That is where the issue of standards is crucial--assuring that}
^{the different components of a system can talk to each other. Industry}
^{is actually working at that through the voluntary standards process.}

13 [Some people want the little bug that goes around, goes
 14 one way and some want to go a different way, and it may not
 15 be worth changing.]

16 The Chairman. There has to be that basic compatibility?

17 Mr. Olson. There has to be the basic compatibility, yes. ^{And}
^{Congress should support industry's efforts in the voluntary standards area, particularly by}

18 The Chairman. What about vendor support of the systems
 19 if you have different components?

^{encouraging Federal agencies}
^{to participate in and support}
^{the industry process.}

20 Mr. Olsen. Oh, now, from that point of view there are
 21 things you have to ^{do: training, maintenance, for example.} --That's a business decision, the administra-

22 tive people have to be careful to make ^{to be} sure that they get good
 23 support for everything. It's a major issue, ~~in this area.~~

24 The significance of reliability cannot be under-estimated, ^{especially} if
 25 you become dependent on ^{the technology.} ~~it~~. A newspaper printed on a computer,

1 ~~the publisher has~~
 they have to have it every afternoon to print that paper
 2 When the Senate becomes dependent on a computer system, se:
 3 vice and reliability are of utmost importance, and that's a
 4 business decision that has to be worked out in selecting a vendor

5 The Chairman. What about training--

6 Mr. Olsen. About what?

7 The Chairman. Training. Do you have to, if you have
 8 number of those, you have several vendors, do you have to
 9 bring your staff together with three or four different gro
 10 rather than just one different group, one vendor?

11 Mr. Olsen. Oh. There are this list of disadvantages
 12 to having more than one vendor, and you have to weigh that
 13 Each one should be able to retrain ^{in the various distinctions} and then, the self-train
 14 ^{as well as} ~~the~~ class training, ^{and} individual training, ^{these} are all factor
 15 in picking an individual system ^{and vendor}.

16 The Chairman. All right.

17 In your testimony just now you were describing how you
 18 could put together memoranda and correspondence and you sa
 19 really the cost factor wasn't the overriding decision, the
 overriding basis of decision.

21 How do you evaluate costs and benefits of automation
 22 technology in offices like Senate offices?

23 Mr. Olsen. We believe ^{the advantages} they are there; but we can't
 24 figure out how to ^{quantify} ~~justify~~ them, because your assumption--

25 The Chairman. We have got 225 million people that ar

1 paying the bill here; we have to justify it somehow. I don't
2 know that I can use your testimony in that sense.

3 (Laughter.)

4 Mr. Olsen. You are only allowed two Senators in each
5 State, and you just can't reproduce them, and you have to use
6 their time or some of these--

7 The Chairman. Some people wouldn't want to.

8 (Laughter.)

9 Mr. Olsen. And it's almost worth any price if you can
10 use their time more valuably, if you can have just be more
11 efficient and more relaxed, you know, and--

12 The Chairman. More thoughtful; hopefully?

13 Mr. Olsen. More thoughtful. And that's really the pay-
14 off, and that's the payoff in business. *The technology brings improvements in efficiency and in individual effectiveness.*

15 The Chairman. Do we take any risks? Do you see as we
16 increase automation in Senate offices whether there are
17 risks? Is this whole technology developed to a point that
18 it is a settled and established business practice, or are we
19 still a sort of research and development project?

20 Mr. Olsen. There ^{are} always risks, and you have to pick
21 the right vendors and make the right decisions. But ^{the technology} ~~it~~ is
22 proven. *Anything the Senate would acquire would not be a laboratory prototype!* It's been going for many years now. [^] And there are
23 other risks in usage. If it takes two days to get something
24 or if you want it immediately ^{ly} and you have to send somebody to
25 deliver it, the correspondence is low or the telephone calls

1 are high. If you have fast communications, you may end up
 2 with a lot more notes being sent, and this can sometimes be
 3 wasteful. ~~and there are things like this which we don't quite~~
 4 ~~understand initially.~~ In general, I think that they are far
 5 *outweighed* ~~away~~ by the positive benefits.

6 The Chairman. Now, going back to the previous answer on
 7 the question of how do you calculate the benefits.

8 You emphasize efficiency and effectiveness in office
 9 automation systems. How would you measure effectiveness?
 10 *between what you can do with a system, as opposed to not having one.*

11 Mr. Olsen. Oh, I think there's no comparison. If you
 12 *can get* ~~the~~ information and it's easy, if you can take care of
 13 an issue, a letter or something easily, it's just--

14 The Chairman. If you can do what Senator Hatfield--say
 15 it wants to do--alternatively write a single letter to
 16 a thousand constituents or a thousand individual letters and
 17 you can do it sitting in Washington and have typed in either
 18 Oregon or Washington, would you say that's an effective--

19 Mr. Olsen. You may argue the question that he should
 20 send it to a thousand, but--

21 The Chairman. Well, that's his decision.

22 Mr. Olsen. That's his decision. But once you assume
 23 *every aspect of sending those thousand letters,*
 24 that, the--everything *is just so much easier, in just the*
 25 ~~present form.~~

26 *(I)* At one time ~~was getting in my office~~ 200 job applica-
 27 tions addressed to me, all my classmates they said, and 200

1 requests for contributions. Now, that's urgent, you see.

2 ^{with only} three secretaries--I obviously am not there long enough to
 3 do that. Now, they take care of that quickly and easily with
 4 the computer. And someone calls up and asks what happened
 5 to that letter? ~~and~~ ^{As} he's talking to the secretary, she
 6 strolls to the tube, immediately finds out what she did with
 7 ^{his letter} ~~it~~, and she can tell him before he finishes talking what
 8 happened to that letter and who was taking care of it. And ^{I believe}

9 just ~~for~~ her pride and satisfaction ^{are} worth all of the
 10 costly equipment, ^{which permits her to} ~~and because we~~ handle it so nicely as far
 11 as the one calling is concerned. And it is this kind of
 12 thing which just makes the office a pleasant place to be.

13 The Chairman. Do you have any questions, Senator?

14 Senator Hatfield. Mr. Chairman, I would just like to
 15 make one further observation.

16 Mr. Olsen, you were talking about these letters, the
 17 correspondence you received.

18 Do you have a storage system in terms of quick reference
 19 to those letters that you sent out, you could pick them back
 out and initiate a correspondence later?

21 Mr. Olsen. The letters I have--that I write, the
 22 internal letters and notes I gather are filed electronically.
 23 The letters I get from the outside are filed electronically
 24 just by a title.

25 Senator Hatfield. You know, one unique factor in our

1 particular job is that we have traditionally, historically,
 2 only reacted. We have been in a role where a constituent
 3 writes to us, we try to expeditiously respond--and, from
 4 the standpoint of time, I am 3,000 miles from my constituency,
 5 and frequently constituents will write all members of the
 6 delegation [inaudible] which one is going to answer first
 7 the same letter, the same request.

8 One of the great problems we face in the country today,
 9 in my opinion, is the feeling of disconnectedness between the
 10 citizen and the government, and that gap, that failure to
 11 bridge it. What we have found very effective is that a per-
 12 son writes to me about a Social Security question; all right,
 13 I respond to that question, we store that. Six months later
 14 we have taken some action that affects Social Security. I
 15 now pull out all of those people who have written to me on
 16 that subject, initiate a response, saying you wrote me re-
 17 cently about this, and there has been this modification that
 18 I would like to update you. That has given us the opportuni-
 19 ty to be more than just reactive in a relationship with a
 20 constituent; also it tends to bridge the gap, the feeling of
 21 disconnectedness. To me, that is, from our standpoint, a
 22 very fundamental part in being able to serve a constituent.
 23 I feel, well, that's great political fall-out; sure there is
 24 political fall-out for that; the person says, my golly, he
 25 remembers the letter I wrote to him, now he is writing me

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about the same thing. But I think more importantly than any political fallout is the fact that it does provide us with a bridging relationship that I think is deeply in the fibers within our society.

Would you care to comment on that facet of being able to store and utilize again in an initiative role rather than a reactive role?

Mr. Olsen. Yes. That's one of the things you can do. And I think it is just one more example of the way in which your computing technology can make us more human instead of less human.

Senator Hatfield. You think of technology oftentimes as dehumanizing of a relationship, whereas in this situation, I think we can really infuse a human element in the so-called history of technology.

Mr. Olsen. Senator, you asked if there is any danger. There is one danger which a staff should be very conscious of and that is ~~there is always~~ ^{the ever-present} security problem. Now, most of the correspondence you have is of no great ~~significance~~ ^{sensitivity.} But ~~it~~ ^{security} is something that should always be kept in front of people: ~~that~~ security costs money; security has complexity and red tape; and when you need it, it is going to cost more. ~~and~~ It shouldn't be used when you don't need it, but it should be considered as part of the system.

The Chairman. Well, thank you very much, Mr. Olsen. We

1 appreciate very much your being here and starting off these
2 hearings.

3 The next witness is Mr. Jack C. Davis, who is Senior
4 Vice President of Harris Corporation.

5 Mr. Davis. Thank you, Mr. Chairman.

6 I have with me today Bill Tolley from our corporation.

7 My name is Jack Davis--

8 The Chairman. We are glad to have you and Mr. Tolley
9 who is well known to the Committee.

10 Mr. Davis. As you said, I am a Senior Vice President
11 of Harris Corporation. Harris Corporation produces high
12 technology information processing and communications systems
13 equipment, and we have sales of \$1,700,000,000 and employ
14 about 27,000 people in 40 plants in the United States and
15 abroad.

16 I am responsible for the the company's operations in
17 the product areas of super-minicomputers, distributed data
18 processing systems, word processing systems, interactive
19 computer terminals, digital Public Branch Exchange, so-called
20 PBX telephone systems; computerized control systems for
21 electric power utilities, pipelines and railroads, and text
22 processing systems for newspapers and the in-plant printing
23 operation.

24 My statement will emphasize the developing trends in
25 computing and communication services over the next decade.