I. INTRODUCTION

As Mr. Norris has pointed out, the power of our business strategy gives Control Data the basis on which to build the most competitive company in the world. My remarks this morning will focus primarily on a second key factor to which he referred -- that is achieving a high degree of internal operating effectiveness. I'll also touch briefly on a couple of significant 1982 achievements with regard to implementing our basic business strategy, and marshalling cooperative resources.

II. INTERNAL EFFECTIVENESS

Control Data's relatively good profit performance in 1982 -- in the face of a growth in computer business revenues of only 5.8 percent, in the face of casualty insurance losses and reserves which reduced Commercial Credit's planned earnings by some $10 million, and in the face of an economy which had a
negative impact on almost all of our businesses in some way --
that performance and the projected improvement in 1983 can only
be attributed to a concentrated effort to just plain do better
than circumstances would otherwise have it. Said another way,
it is a matter of improved effectiveness in day-to-day
operations.

For a business organization, being effective is a question of
how well it utilizes its resources of money and people -- more
precisely, it's a question of people, the processes by means of
which those people achieve their work objectives, and the
capital necessary to finance the task. "PPC" -- people,
process, and capital -- then, are the keys to a high degree of
internal effectiveness.

People

The basic premise with regard to the productivity and
effectiveness of Control Data's people is straightforward.

If people believe they are working in an environment of
relative job security....perceive a sense of justice and
fairness....feel that what they think and do matters....have an
opportunity to acquire necessary skills....and, of course,
receive appropriate benefits....they will make the commitment
to become more productive.
Now, whether an employee senses these principles depends not on what we say -- rather it depends first and foremost on what is experienced day in and day out at their local work site. So, the key is management development at all levels. The average manager in Control Data last year received more than 42.3 hours of training. More than half of the courses for managers include exercises in the application of those basic principles I mentioned. From the moment individuals prepare to enter management, they learn to apply those principles in the context of the area they will actually supervise.

But training is not enough. The whole concept has to be consciously introduced into everyday work life. In 1982, we developed an intervention process to help the top management of our business units understand how to do this. The process integrates several objectives which are listed on this slide:

One example will serve to illustrate how this process has translated into results in terms of operating effectiveness. Engineering services was the first organization to use it and the results have been truly impressive: one whole layer of management has been removed, between 1981 and this year the pre-tax return on revenue has improved by more than one-third. And all that is occurring when maintenance charges for new computers are 25 to 50 percent less than those for the predecessor product line.
But let me go back to the basic principles of our "people strategy."

**Maintenance of employment:** During the spring and summer of 1982, headlines would have had you believe Control Data had instituted a large number of layoffs. That just wasn't true. Through all the economic pressure of 1982, we managed to keep forced layoffs to less than 1.5 percent of our total U.S. full-time employees -- approximately 700 people.

And we were able to do that because we'd begun constructing a strategy to provide the greatest possible level of job security to the greatest number of employees. The strategy involves the creation of two types of safeguards: One type helps assure a full workload for full-time employees in the event of a downturn in business. Basically this amounts to using outside contract work and supplemental employees for up to 15 percent of our projected workload. This policy had not been fully implemented when the business downturn came in late 1981. Even so, the buffers represented by outside contract work and supplemental employees prevented the forced layoff of some 2,000 full-time employees last year.

The second type of safeguard comes into play when the first buffers have been fully utilized. In the event of a more severe downturn, we have a variety of techniques for spreading
that work which is available over the maximum number of employees. Included in this category are such actions as closing plants around holidays, utilizing a four-day/32-hour week, providing a time off without pay program for those most able to do so, a special corporate placement office for internal transfers, and a new division called SWAT to which surplus employees can be assigned. This division functions as a sort of internal temporary help service by providing people to areas where there is a backlog of work to be done and on the other it's a buffer for surplus employees until permanent reassignments can be made.

**Equity and Justice:** The emphasis here has first been placed on prevention of problems. Recognizing, however, that some conflict just can't be resolved locally, in addition to normal grievance procedures, confidential counseling on both work-related and personal problems has been provided for many years.

Going beyond this, we established a process last year under which unresolved work-related problems are reviewed by a panel of employees, together with an executive, but under the guidance of an ombudsperson. The panel then makes recommendations to top management. This process was tested for a number of months in three locations, each time giving management advanced training in handling conflict.
The process worked so well (not one panel was needed in any of the locations) that in 1983 and 1984 it will be put in place throughout the U.S.

**A Climate of Involvement:** Involvement teams are a key ingredient in letting employees know that what they think and do matters. I have spoken about them at previous annual meetings and will not elaborate today even though involvement teams continue to grow in number and importance. By the end of 1982 there were 528.

Last year we also wanted to involve employees in celebrating our 25th anniversary. Considering the economic times and the emphasis being given to involvement -- to the significance of every employee's contribution -- we chose to ask them to share with us every "bright idea" they had to improve performance....improve productivity. There was one provision. The ideas had to involve something the employee personally could implement.

The response was overwhelming. We received more than 13,600 ideas in just 11 weeks.

Another effort we've undertaken with regard to involvement is called the Employee Entrepreneurial Assistance Office -- a
confidential service for employees thinking about starting their
own businesses. Since the program began in 1979, more than
600 employees have contacted EEAO and 57 of them have actually
gone through with their business idea.

But why should helping employees start their own businesses
contribute to Control Data's productivity? For two reasons.

To begin with, as noted, more than 90% of the employees who
contact the Entrepreneurial Office ultimately decide not to
leave. Needless to say, those employees go back to work more
motivated and more productive -- they feel better about
themselves, their jobs, and Control Data.

Secondly, by helping those who do finally decide to strike out
on their own, Control Data is in a position, where desired, to
work out some sort of cooperative arrangement with them -- and
that enables us to continue to benefit from the person's talent.

Education and Training: Finally, there is the critical matter
of giving employees the opportunity to acquire necessary
skills, both for their current job -- and their next one.
At the present time, more than 1,800 different courses are
available to Control Data employees, covering almost every
skill imaginable. Last year employees received more than a
million hours of training, much of which involved the use of PLATO. Without the cost effectiveness of PLATO, the company simply could not afford to provide this degree of training. Moreover, without the quality PLATO offers, such training wouldn't even be worthwhile. And the training goes far beyond teaching people how to sell or how to master basic math and science. Some of the most sought-after new courses last year had to do with life planning, coping skills, and language.

Process

Now let me move to the second element of operational effectiveness: process. Improving process is a primary job of management. It requires a management mind set -- an intensity of dedication and thought day in and day out.

Using involvement teams is one way to attack poor process at a grassroots level. There are likewise well-defined methodologies such as statistical quality control and process flow analysis which can help managers and work groups such as involvement teams.

In December of 1981, we initiated an intensive effort in the area of process flow analysis. More than 3,700 employees have been trained to use it thus far and their know-how has already been applied to more than 1,100 separate processes.
The results are just beginning to be felt, but some of the success stories are impressive. Let me share with you some examples from the hundreds:

- An outside vendor told U.S. Marketing it would cost $2.5 million to replace an outdated system -- but CDC employees conducted a process flow analysis and redesigned the system themselves for just $700,000...that's a cost avoidance of $1.8 million.

- Peripheral Products reduced the order processing time for spare parts from 12 to 8 weeks, and by regrouping activities in this area reduced its staff from 18 to 5 for a cost savings of $200,000 per year.

- Engineering Services reduced the collection time cycle for its accounts receivables by six percent and thereby generated additional interest income on the earlier deposits of $1 million per year; Engineering Services also reduced its freight cost cycle time that was another $800,000 per year.

- Personnel and Administration consolidated its corporate and regional personnel activity -- the resulting reduction amounts to an annual savings of $471,000. In addition, by making better use of the Employment Placement Center, they achieved another annual savings of $491,000.
As we told employees in a letter recently, process flow analysis has already saved us millions of dollars -- and will continue to do so every year.

**Capital**

With regard to the third element in our formula for improved productivity -- capital -- we continue to improve on the solid progress we've made in previous years. This is true both in terms of funding the business at a reasonable cost and in terms of reducing working capital needs for receivables and inventories.

As you can see by this slide, the ratio of revenues to outstanding receivables improved on a quarter-by-quarter basis in 1981.

Now, the economy slowed significantly during the second half of 1981, however, as you can see by this slide, quarterly improvements continued. As a matter of fact, the average days outstanding for receivables in the industry -- the electronics industry -- as published by the Credit Research Foundation -- deteriorated seven percent last year and now stands at 49 days. At Control Data, however, days outstanding improved from 42 days in 1981 to 37 today -- 24 percent less than the industry average.
III. COOPERATION

Let me turn now to the matter of cooperation -- MCC, which Mr. Norris mentioned, is the most recent major cooperative initiative. The four R&D programs which MCC will initially undertake are these:

Packaging: A six-year program to advance the state-of-the-art in semiconductor packaging and interconnect technology.

Software Technology: A seven-year program to develop new techniques, procedures, and tools that can be used to improve the productivity in the software development process.

Computer-Aided Design and Manufacturing (CAD/CAM): An eight-year program to improve computer-aided design and computer-aided manufacturing technology and to develop an integrated set of tools that will have particular application to complex systems and the very complex VLSI chips from which they will be built.

Advanced Computer Architecture: The most complex and ambitious of all MCC programs, this ten-year effort will focus on four major elements, including artificial intelligence, new techniques for data base management, human interface with computers, and parallel processing.
In each instance, the research objective is to advance the technology in terms of both feature and performance. To give you some idea of what is intended, with regard to performance we generally are seeking improvement by a factor of 100 over current state-of-the-art.

It's difficult to grasp the power of cooperation but perhaps looking at it in the following way will help. In its first year, MCC's budget will be relatively modest -- less than fifteen million dollars. But if all 12 participants were undertaking the same tasks individually, they would collectively spend 12 times that, or nearly 180 million dollars. In effect, MCC is freeing 165 million technical dollars which can be spent instead on individual company innovation. When MCC reaches maturity, its budget could easily reach 100 million dollars -- the same arithmetic yields a billion dollar annual benefit and that's easy to remember. So you can easily see the effect even a relatively modest number of such cooperative undertakings could have on the U.S. economy.

MCC is a major endeavor, but it is by no means the only such activity in which Control Data is engaged. There are now some 80 cooperative projects -- including some familiar names such as Magnetic Peripherals, Inc.; Computer Peripherals, Inc.;
Centronics....and some I'm sure aren't familiar to many of you. For example, Disk Media, Inc. and Peripheral Components, Inc. are cooperative ventures with Burroughs/Memorex in techniques related to magnetic disk memory systems. Optical Media Laboratories and Optical Peripheral Laboratories are ventures with the Phillips Company related to so called optical disk memory systems. We are participating with about fifteen other companies in the Semiconductor Research Corporation, which is a venture whose objective is to improve the quality and quantity of semiconductor research and education in our universities.

The more interesting statistic is that there are about 50 new cooperations in some stage of proposal or negotiation. By far the majority link Control Data with small companies. This cooperation with small companies will continue to grow -- it is, in fact, a vital aspect of making Control Data the most competitive company in the world.

IV. STRATEGY

In the time remaining, let me briefly mention two businesses which are key parts of the strategy of approaching major unmet needs of society as business opportunities.
The first is our response to the need for training and retraining to meet the ever-increasing pace of technological change in business and industry. Of late, this subject has been receiving lots of media and Presidential attention. You've already seen film clips of President Reagan's visit to the Control Data Institute in Pittsburgh -- and some article reprints which are available in the lobby can give you a closer look at our programs. One of the most significant endorsements of PLATO training for business and industry appeared in Business Week two months ago. Business Week told its readers that "computerized training may finally be about to take off" and predicted that "PLATO will be tough to overtake."

A second area in which Control Data has perceived a major business opportunity is in serving the needs of small business. Now, improving the climate -- the environment -- for small business is a matter of cooperation between government, industry, and academia. As noted earlier, we are active in that type of cooperation.

But fashioning specific services to meet the needs of small companies is a major business for Control Data. These services include Business and Technology Centers, which can best be thought of as small business incubators; Control Data Business Centers to serve a business' diverse, on-going financial and
information service needs; and Control Data Business Advisors, which brings affordable management consulting to the world of small business. These businesses are all less than five years old. Each made significant progress in 1982. For example, through the Business and Technology Centers, more than 1,100 jobs have been created. I wish there were time this morning to go into more detail. Unfortunately, there is not.

V. CONCLUSION

So I'll summarize by saying that devising products and services based on the strategy of applying computer technology to major unmet needs in our society is exciting and fun -- it's also hard work and requires a long-term commitment. The opportunities are far greater than our resources. That's frustrating -- but cooperation makes more things possible than we could conceivably otherwise undertake. Above all, however, we are dedicated to the task of making ourselves -- through "people, process and capital" -- the most effective, the most competitive company in the world.

Thank you.