INTRODUCTION

Thank you, John [Vollum]. It's good to be back at the University of Minnesota. Last month I was at the Hubert Humphrey Institute on the West Bank campus to talk with graduate business students as part of the University's Executive Speaker Series. My topic was computers in the 1990s but I couldn't resist saying something about quality, or more precisely, Total Quality Management. I told the students that if they did not know or practice the basic concepts of Total Quality Management, their MBAs are about as useful as an automobile without an engine.

American business has preached quality as a way of life for a long time. In fact, I can remember giving copies of Philip Crosby's book, "Quality is Free", to members of my staff in 1979. "Go read this book," I told them. "This is what we've got to do." But only in recent years have I truly understood and practiced the concepts of Total Quality Management.

Putting quality into practice generally requires fundamental change. And fundamental change is something that is easy to put off, especially when uncertainty is high.
There's a widely-held belief, for example, that an organization can't improve quality during periods of instability. Well, I can tell you at Control Data we found exactly the opposite to be true. It's when times are bad, turmoil is great and the need for improvement is urgent that the acceptance of change is absorbed at the grassroots level.

The period since the mid-eighties has been an increasingly troubled one for the computer industry. In terms of economic forces, competitive structure and technology, the industry has never seen greater change.

Control Data has felt the full impact of this change. By 1985 the Company was experiencing severe liquidity problems brought on by over-expansion in the number and scope of businesses it was pursuing. Fear for survival became very real throughout many of the Company's businesses. What this also produced, however, was a crises environment--one where change was more readily accepted.

Fortunately, the Company had matured in its understanding of quality to the point where it was able to articulate and adopt a total quality management concept. We called it the Total Quality Management Process--TQMP.

THE ROOTS OF QUALITY AT CONTROL DATA

The first formal quality effort started the same year the Company did--1957. It was a requirement of a contract Control Data had with the U.S. Navy.
The early quality efforts were almost entirely characterized by inspection and rework to assure compliance. Quality was tested into products, sometimes at great cost and penalties to schedules. There was only a hint of the prevention mentality that characterizes current quality efforts.

In the 1970s, a central staff function for quality was established. Out of this came a product-oriented quality life cycle that evolved into a phase review system. Quality considerations became part of product definition, design and development cycles.

At the same time, quality issues began to get more executive attention. This was primarily because customers were becoming more vocal when they were dissatisfied. Not that we always listened. I recall more than once the term "nit-picker" being used when a customer complained about defects in disk drives they were buying from us.

A key event in the history of quality at Control Data occurred in 1981 when Dr. W. Edwards Deming addressed a group of some 700 Control Data managers and technical people. He said, to borrow a phrase from a popular television commercial featuring baseball and football star Bo Jackson: "We didn't know 'didley' about quality. For that matter, we didn't even know the right questions to ask." After being slam-dunked by those comments, we began to examine a fundamental problem: How to integrate, not impose, quality into every aspect of the business.

FOCUSBING THE DRIVE FOR QUALITY
The seeds planted by Dr. Deming’s visit led to the development in 1983 of TQMP.

The one thing that crystallized TQMP was the realization that quality is more than MTBF or MTTR in products and more than tools, techniques and SQC training in an operation. Total quality is a management style. It is a particular approach to the process of human resource management. Unleashing the quality potential of the people in an organization can only come from management. Quality is management’s primary responsibility. This belief is expressed in the first of three TQMP principles: Quality can and must be managed.

The second TQMP principle is: Everyone has a customer. Every employee has a work product or products. Those who receive that product have the right that it conforms to expectation. They are "the customer". If the work product that one employee provides another has defects or is highly variable, that internal customer's output, in turn, will carry forward or amplify those same problems. Ultimately, of course, it is the external customer whose expectations are not met.

The third TQMP principle is: Processes are the problem, not people. We define a process as any series of steps in any work environment: administrative, technical, managerial, and operational. Studies indicate that 80-85 percent of the defects in products and services come from the systems or processes that produced them.
From what I've already said, I'm sure it's obvious that TQMP didn't just spring forth one bright morning in 1983. And even though the basic principles were explicit, TQMP evolved. We had to feel our way. We studied the teachings of Dr. Deming and other quality experts. We examined what other companies were doing. We combined what we learned with the pockets of expertise that already existed within the Company in statistical control methodology, process flow, and so on. I should also add here that TQMP did not start at the top of the Company. In fact, the top didn't even know that it wasn't starting there. Like everyone else I went through the "lip service" stage. But through personal involvement--experiences that I'll relate with Cindy Potter's help later in the program--I found that TQMP really worked. I also learned that getting understanding, commitment and involvement in quality methods from senior management is the most important--and perhaps, the most difficult--task of all. That task started by my attending with all the Management Board -- the top executives of Control Data -- a three day training class in Statistical Quality Control.

I heard plenty of mutterings about "I'm too busy", "I have a crisis", "Is this really the best use of my time?" and "I know all that statistical stuff already". We did it anyway. It is essential that management learn and practice the analytical and statistical tools that are the technical underpinning of any drive for quality.
Another important aspect of implementing TQMP was this: it was important that employees at all levels know that I was committed to TQMP. This involved more than pronouncements from afar. It was demonstrated by making quality the theme of communications meetings and focus group sessions that I have regularly with small groups of employees. Quality was also, of course, a part of every communication, written or oral, that I had with larger groups of employees.

Finally I emphasized the importance of total quality management by becoming involved in quality efforts external to the company. In 1987 I helped organize and became a board member of the Minnesota Council for Quality. I also became and still am Co-Chair with the Governor, of the STEP Committee, which fosters quality initiatives in state government. By these and other means the organization saw that Total Quality Mgmt. was a way of life for me and I expected that of everyone.

In summary, to actively focus an organization on TQMP, it requires:

- The commitment and involvement of the person at the top.
- The commitment and involvement of the whole top executive group who are knowledgeable and practice what they preach.
- Incessant communication to small as well as large groups of employees.
- External involvement and visibility of top management in
promotion of quality.

MANAGING QUALITY IN A SERVICES COMPANY

As many of you know, Control Data has a long history as a producer of advanced, large-scale computers for scientists and engineers pushing the limits of technology. The dominant characteristic of the Company's strategy, however, has been one of "differentiation" by focusing on value or performance as opposed to a "low cost producer" strategy. So for the past two decades, the Company has moved steadily into a variety of businesses that use computers to solve information problems.

Last year, Control Data sold its sole remaining low cost producer business -- Imprimis -- the data storage products subsidiary. It also significantly refined the product strategy in its computer systems business. With these actions, Control Data completed an, at times, very difficult transition to a company whose primary thrust is services.

Today, Control Data is what we refer to as a data solutions company. We provide systems and services to help customers solve their data needs. This can be collecting and transmitting data as is done by the Company's financial services business--Micrognosis. It can be analyzing and processing data--the Company's Business Management Services and energy management systems business, Empros International, are examples of that. Or, it can be completing transactions as performed by Control Data's Automated Wagering business.
The wellspring of the quality movement, however, is manufacturing. This has shaped the worldwide approach to quality. That's beginning to change. But any service company must be prepared to do a lot of pioneering. We certainly found that to be true at Control Data.

Consider quality training. We had to take classic manufacturing examples and adapt them to services. This involved overcoming a serious communications barrier. When they are first exposed, services executives tend to simply reject quality technology as "inapplicable".

Providing relevant training was one of the easier obstacles to overcome. A service is, by definition, produced simultaneously with use. The sequence of steps that produces service frequently involve "soft" or subjective outcomes rather than distinct, measurable specifications.

Compared with a manufacturing process where measurement is perhaps the easiest part of the quality management task, there is much to be learned about measurement--gathering adequate and appropriate statistical data--in a service business.

Control Data's Business Management Services (BMS) has made good progress in this area and produced one of the Company's more impressive success stories.

BMS provides automated payroll, financial and human resources management systems to U.S. companies. In 1984, BMS lost $1 million. Today, it is highly profitable, with a compounded annual profit growth rate of 154 percent over the past five years.
BMS achieved an outstanding service record in 1989 by delivering more than 99.5 percent of the payroll checks and associated reports it processed on time and right the first time. This was accomplished even though the number of checks it processed increased more than 14 percent over 1988. Customer retention is up. Customer satisfaction is up. Employee satisfaction is up.

At Control Data, we define quality as "meeting our customers' needs and expectations". Using a "gap analysis" technique, BMS can measure how well customer expectations are being met.

Take, for example, payroll checks. If 98 percent of BMS' customers say the delivery of payroll checks on time is important and only 90 percent are satisfied that this is being done, there is a gap of eight percent that has to be addressed. The job of a service supplier is to understand clearly any gaps between what the customer expects and what the customer perceives receiving.

To further enhance quality and productivity, BMS has adopted a "gainsharing" approach. This involves employees in setting and measuring objectives. It rewards them financially for achieving them. Employees at BMS' tax filing processing center in Baltimore, Maryland, have identified the number of penalties they are assessed as one quality measurement. A key measurement of productivity is the number of hours, on average, it takes to do a tax filing. Gains in these areas, and others, are evaluated on the basis of the financial performance of the organization.
Overall, Control Data has made significant progress toward being recognized as a quality leader in each of the markets it serves. We feel, however, that Total Quality Management is still too dependent on heroes and missionaries...that it is not adequately integrated into the "mainstream" management processes of strategy and operations.

Champions may move on to other goals or organizations. Exhortation has its limits. So, the challenge facing Control Data in the 1990s is making the practice of TQMP more natural, more a part of the everyday management process.

WHERE TQMP IS HEADED

How will Control Data meet this challenge?

Well, quality starts with strategy. At the strategic level, quality is synonymous with marketing. Strategy is a defined plan for seeking competitive advantage. It is a plan for "meeting customer expectations" more efficiently than the competition. It is a "plan for quality" that is continuously improving. Strategy is made real through a detailed list of strategic initiatives which address improvement in each process that is a part of achieving a goal.
Each initiative is further divided into tasks involving technology, administrative, technical, training, human interaction and communication processes. Each process must have continuous measurement of time and cost and individual responsibility. These strategic initiatives constitute the operating plan for an organization, and the budget is simply the detailed income and cost quantification of the operating plan.

Progress against these plans is subject to regular, systematic review. This has involved changes and improvement in planning, management objective setting and performance appraisals. More importantly, it has changed the content of the monthly collective management activity we call "operations reviews". Most operational review sessions in any organization result in management reaction to problems—either problems in the reported numerical results or in the forecast. What Control Data is now doing with TQMP is examining process against initiatives to improve the processes underpinning those results. In short, we are attempting to be proactive in process improvement rather than reactive to problems.

This is the direction Control Data is headed with TQMP--implementing it at the strategic level so that it is guiding daily management action.
Control Data will achieve its goal of being recognized as the quality leader in each market it serves when every manager at every level of the Company is involved in TQMP and using its techniques and tools every day. When that happens, TQMP no longer will be the result of executive insistence or intimidation. TQMP simply will be the way Control Data is managed.

[PAUSE]

And, now, to kick off the second part of today's program, I'm going to ask Cindy Potter of Prime Process Management to give you her perspective of Control Data's quality story. Cindy was a Control Data employee at the time, and deeply involved in the quality movement at all levels of the Company. Cindy...

[CINDY TO DISCUSS THE FOLLOWING POINTS: Government Systems improvements: Involvement with the Pentagon's TQM: Monthly TQMP reviews, and understanding the "big picture" side of the quality process]
I said at the beginning that unleashing the quality potential of the people in an organization can only come from management. For this to happen, the CEO needs to understand and be fully committed to Total Quality Management. That understanding and commitment comes only from hands-on experience. You can't expect employees to be doing something that you don't know anything about. To me it's always seemed that the most straightforward way to do this is to take one of your own processes and lead the effort to improve it--personally. Cindy and I are now going to discuss two projects we tackled together.

The first project was speechwriting. At the time, I was giving as many as five speeches a month. I was burning the midnight oil preparing the speeches. My secretary, Sandy, was spending at least one week per month preparing drafts. Speechwriting had become a time-consuming monster. Cindy will discuss the process used to bring the monster under control.

[CINDY TO DISCUSS SPEECHWRITING PROCESS, USING OVERHEADS SHE HAS PREPARED]

The moral of the speechwriting story is: design specs. The time you spend on design specs is the most highly-leveraged time. It's the most valuable time of all. [PAUSE]
Obviously the way a CEO spends his or her time is highly leveraged in terms of an organization's success. I decided that I should look systematically at how I was allocating my time. Was I, in fact, spending my time on the things I considered most important? In other words, did my "time spent" profile match my priorities profile?

Well, I took key priorities and, again, with the help of Sandy, my secretary, and Cindy, worked out a classification by type of activity and a time sheet divided into fifteen minute intervals. Sandy filled in certain obvious uses of time. But each day for four months I went through the process of recording what I had done. It wasn't easy. The recording process itself took time, thought and effort.

At the end of one particularly long day I found the time sheet at the bottom of my "to do" file and started to work at it. After a moment I stopped and said to myself, "What is going on here? I've worked almost my entire life and here I am filling out a time card again!"

Then I started laughing.

So, don't think gathering data, measuring processes, or quality in general is easy stuff. It's not. But you'll feel good...and probably laugh some as well. You may gather some useless data. Sometimes you'll discover you are using inappropriate measures. But you will also gain a lot of insight: into more effective data collection processes themselves...into the work processes of your group...and, as a matter of fact, into your own management style.

[CINDY TO DISCUSS TIME MANAGEMENT STUDY]
As you can see from the graphs Cindy just showed you, the majority of my time was being spent in meetings requested by other people. Others were controlling my time, not me. And most of the time, people were coming to me with problems. So, I was reacting to their problems. The bottomline was: my calendar was controlling me and I was up to my eyeballs in crisis management.

As a result of the study, I established time management goals based on the four strategies I had prioritized. I was determined to control my time and direct my efforts to where I wanted the Company to go strategically. I was going to be proactive, not reactive. And, finally, I was going to empower those people who had been coming to me with their problems to deal with them differently.

[CINDY TO DISCUSS RESULTS]

Peter Drucker once said: "The only way to predict the future is to create it."

In order to set goals, a clear set of priorities is needed. This was the key to improving my time management--what strategies were top priority for me. I was forced to pound a stake in the ground and take a stand on what's important for the Company strategically. By focusing on the strategic thrust, I was able to empower others to work the details.

Now, it's your turn to ask questions. Cindy and I will try to answer them.