

this invoice, look what happens when we get a dead-on-arrival radio, etc." Well, it started to really get into our hearts.

Total Customer Satisfaction became the overriding banner of the general objective of what we wanted to accomplish. We learned what it took as a function of that benchmarking that I spoke of, and all of our people participated. They took that sense of ownership in the accomplishment of that objective, but we had to have a considerable unity and communication and understanding with each other. Therefore, we went about the job of literally rewriting all of the critical and inspirational and informational documents of the corporation.

One of these is such a simple document. You can't read it, of course; all that you can see is that I am holding a small piece of paper about the size of a card out of a deck of cards. We were able to put on this card all of the critical factors that reinforce our key beliefs and key goals as well as our key initiatives, and we asked all of our people to carry it with them at all times as a unifying force. All of the other both critical and simple documents of the corporation, of which you have yours, would be an analog thereof. We went back to the drawing board and republished and re-promoted them throughout the corporation so that everyone had a common understanding of the strategy. A common understanding of this and the ultimate goal here (Total Customer Satisfaction) are also the processes themselves.

Now, we had to start doing some tangible things. These did not all occur exactly in the same order that I am describing to you here, but in a reasonable sequence. Early on we said that we had to have a corporate champion, in addition to those of us in the Chief Executive Office who championed it every day. We had to have an executive who would take very keen cognizance of this project, and we therefore established a Corporate Quality Officer.

We took one of the most experienced and finest line executives out of that same sector Art Sundry came from. We asked him to become the corporate quality officer. He became the facilitator and the organizer and the inspirer

of so many of the fine elements of our program. Under his tutelage, and with the involvement of many other people, we started to set goals.

We said to ourselves at first: "Why can't we improve ourselves five times in five years? What does five times mean? What if we had ten thousand defects per million, how about getting it down to two thousand defects per million." Now anything in the thousands sounds like a lot, but those are very high percentages if we're getting school grades, aren't they? I remember at Notre Dame I was a pretty good student, as far as grades were concerned. My father and mother were very proud that I was getting ninety five percent.

You've got to get away from those kinds of mindsets. So, we set goals. Goals that every department would go at simultaneously. Whatever their level of quality was, the goal was to improve it by five times. We discovered by the employment of very particular changes and processes—I will quickly list them here in a moment—that five times goal was readily achievable **(Chart III)**. We moved it up to ten times. We have moved it another one hundred times. Yes, it is this kind of quality change that is entirely doable in any departments—soft activity or hard activity—and our people have come to believe, because they are achieving that.

We set up councils. We got purchasing councils, and we got engineering councils, all communicating and exchanging ideas with each other. Then we had to have a metrics system, a way of understanding among us what we were achieving. We operate this quality system under the rubric of Six Sigma.

For now, let us very simply explain what Six Sigma is. Sigma from your statistics studies is a standard deviation. Essentially, we have learned that if we can contractually agree to accomplish within a norm of Six Sigma on the bell curve, we can produce products that in the ultimate measure of our customers will be literally perfect, or three point four defects per million. That is what Six Sigma statistically translates into. This system gives us a common language where everybody can be rated: four sigma, four point five sigma, five sigma. We already have a lot of departments who have already set Six Sigma goals for 1992. Very particular systems were engineered by the