

# The Tyranny of Targets

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*Eliminate management by objective. Eliminate management by numbers, numerical goals. Substitute leadership. - from Dr. Deming's 14 Points.*

The use of numerical targets has been pervasive in America. Examples include the Domino's Pizza 30 minute delivery guarantee, and the goal to get to the moon "by the end of the decade". We must have something to judge success and failure by. Or do we?

**Red Beads.** Dr. Deming's Red Bead Experiment shows us the harm done with an arbitrary numerical target that the process cannot support. The workers are cajoled, threatened, fired, and rewarded in their attempts to make three or less red beads (defects) each shift. But the process does not allow for achievement of the target, except in the case of an infrequent, lucky result.



*By the way, if you are not familiar with the Red Bead Experiment, a videotape is available, or you can arrange for your group to participate in a Red Bead Experiment. If interested, contact Steve Prevette, 803-952-9803.*

A litmus test phrase Dr. Deming used was "by what means?" By what means will you achieve this thing you want to achieve? With no means, it is highly unlikely you will accomplish what you intended to accomplish.

**Achievable Targets?** An initial reaction by a newcomer to the Red Beads is "Okay, I see the problem with a target that cannot be achieved. But what about an achievable target? Certainly that is okay." No, even achievable targets can be destructive. Immediate problems with achievable goals include:

- Who decides what is "achievable"?
- If it is so achievable, why bother?
- How do you know if achievement of the goal was just luck versus "real"?
- How do you continue momentum to improve after achieving the target?



There are some science fiction writers who believe that the push to get to the moon by 1970 destroyed the U.S. space program. Once the target was achieved, the American public lost interest in funding space exploration.

Targets are comforting to some supervisors. One does not have to understand the system, or understand current results. Simply set a "50% reduction" target, and hold your workers accountable. What could be more simple, or more disastrous?

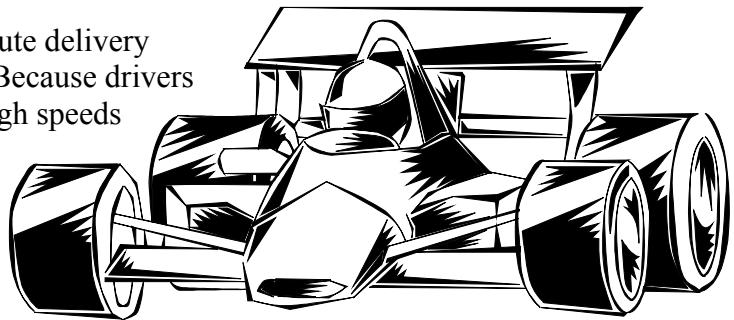
Some supervisors ensure they include the workers in the discussion of where to set the target. The workers being held accountable will negotiate a "safe" goal, with plenty of padding for contingencies, ensuring continuation of mediocrity.

**Three Ways to Succeed.** It has been stated that there are three potential ways to improve a numerical result:

- distort the system,
- distort the numbers,
- or improve the system

The hardest way to improve the result is to improve the system. If you put enough pressure ("accountability") on a person, they will eventually figure out a way to achieve the result, and usually through one of the other two methods. A Dilbert cartoon showed the manager lamenting that the group was going to make this year's profit goals. Of course, this implied that next year's goal would be "set impossibly high". The answer? "Sabotage profits for the rest of this year."

The famous Domino's Pizza 30 minute delivery guarantee no longer exists. Why? Because drivers drove in an unsafe manner and at high speeds in order to make the delivery time. Failure to make the delivery on time was money out of their pockets. Lawsuits due to the resulting accidents came from the company's pocket.



From "241-A-701 Air Compressor Upgrade Special Assessment Report", August 5, 1996, Hanford Washington:

"The results of this assessment indicate that quality and safety were compromised for schedule and to achieve the Performance Based Incentive (PBI) for the 241-A-701 Air Compressor Upgrade"

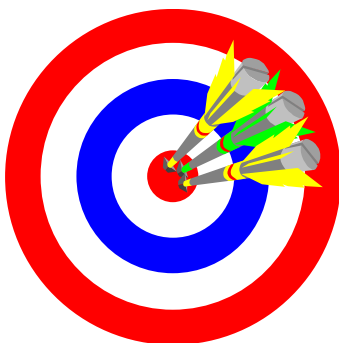
**Three Types of Numbers.** A point made in Henry Neave's The Deming Dimension is that there are three types of numbers used for management purposes:

- Facts of life. If we don't make this profit figure, we will go out of business
- Planning, prediction and budget. Can be used to compare alternative plans.
- Arbitrary numerical targets. Generally used to judge workers by.



**Facts of Life.** Even a child with a lemonade stand (an analogy used by Dr. Barbara Lawton) understands "facts of life". One must know the customer needs (including price), and must provide a product or service that meets those needs. Although Calvin (of the Calvin and Hobbes cartoon) once wanted to sell "swift kicks in the butt", as "everyone needed them", he found no one willing to pay a dollar for one.

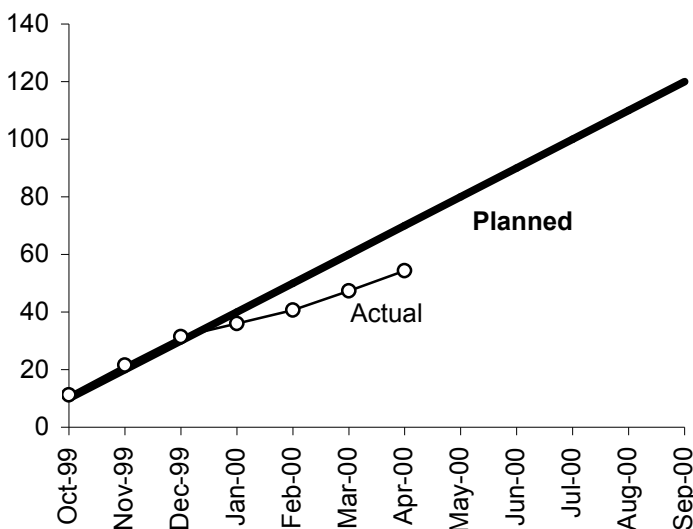
**Prediction.** Planning, prediction, and budget are important. We don't want to play games with these numbers. If we are trying to decide among alternative approaches, such numbers can be useful. But we destroy the usefulness of the planning numbers if we then use them as targets. Certainly there must be some variability (errors, unknowns) in any prediction be it a budget or schedule. To be useful for planning, one must know the "expected value" or center point of the prediction. If converting the prediction to a promise to be made to a customer, any rational person will only quote a number that takes into account some level of "worst case" scenario. The promise is not the prediction.



**Variation.** A not so apparent problem with most numerical targets is that they tend to be expressed as a single point. Even a bull's eye is not an infinitesimally small point. The bull's eye is of a certain diameter, even if slightly off center, a strike in the center circle is still a "bull's eye". Fluor Daniel, in its first year of the Hanford contract, set a contractual target of reducing an injury indicator to a value less than 8. The starting value was greater than 15. The value at the end of the fiscal year was 8.3. This was a significant reduction, but was still a "failure" as 8.3 was greater than 8.0.

**Misuse of Numbers.** A common misuse of numbers is plotting a cumulative, year to date graph of the "actual" performance against the "planned" performance. A typical graph may look like this. "Of course" only the current fiscal year data are plotted.

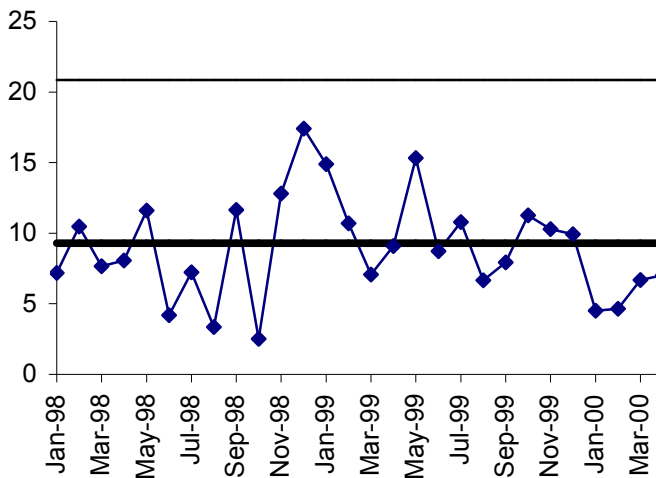
A typical management response would be "We were on target for the first three months, but now we are performing considerably less than planned". Explanations



would be made, and corrective actions announced as a result.

The problem is, if the planned value is the expected value, then 50% of the time we will be "better than planned" and 50% of the time we will be "worse than planned". Each month's result will be "explained" and actions taken due to result that month. It is most likely that the explanations and actions will have no impact on the system that generated the result, except to ensure that we tamper with the planned value for next year.

**Rational Use of Numbers.** A more rational approach to predictions is the control chart. Fluor Hanford is making use of control charting in its Integrated Safety Management System description, and in procedure HNF-PRO-4294. The control chart takes into account the variability of results in any system. In fact, the data in the cumulative graph on the previous page looks like this if you put it on a control chart:



The data for both charts came from the same source, a random number generator with an average of 10, and a standard deviation of 3. The control chart allows us to recognize that we have a stable process. The cumulative year to date graph did not arrive at that conclusion. In fact, there are no criteria given on most cumulative to date graphs that would allow one to separate the signal of a trend

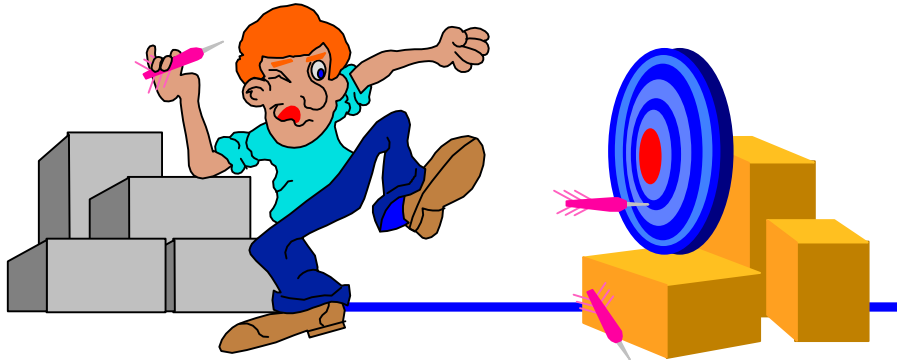
from the noise of variation common to the entire system.

We can use the control chart for rational predictions. One would predict, given no changes to the system, that it will continue to produce an average result of 10 per month, and not exceed a value of 21. If we want to express this on an annual basis, the prediction becomes an average of 120 per year (10 times 12). The standard deviation of the annual number will be the 3 (the monthly standard deviation) times the square root of 12, which equals 10.4. Three standard deviations is then 31. An annual prediction, based only upon past data would be 120 plus or minus 31 (from 89 to 151).

**Establishing a Goal.** With understanding of the system, we can then establish a goal. If we decide (through benchmarking, management review, and discussion with the customer) that 120 plus or minus 31 per year is an acceptable performance level and variation, then our goal is to maintain current performance. Monitor the process using the established control chart in order to detect any changes in performance that may require action. If we do cause an improvement, we will also be able to detect that on the same chart. Use the rules contained in SRNS procedure number Q1-1 Procedure 105,

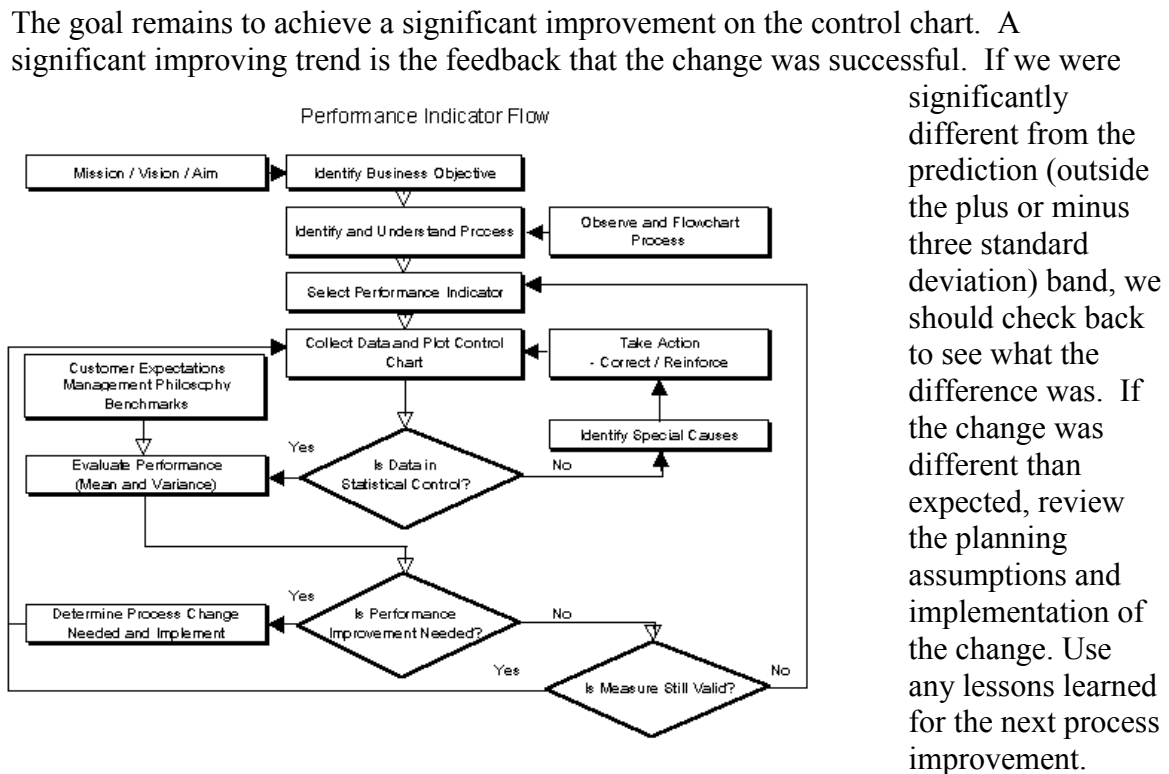
this website, or as reprinted in the in INPO Best Practice 07-007 in order to detect these changes.

**Achieving Improvement.** On the other hand, if we decide (through benchmarking, management review, and discussion with the customer) that 120 plus or minus 31 per year is not acceptable, the goal becomes to achieve a significant improvement in performance. We must determine an effective means to obtain improvement. We



may end up predicting the effects of various proposed solutions in order to choose the most cost effective solution.

The goal remains to achieve a significant improvement on the control chart. A significant improving trend is the feedback that the change was successful. If we were significantly different from the prediction (outside the plus or minus three standard deviation) band, we should check back to see what the difference was. If the change was different than expected, review the planning assumptions and implementation of the change. Use any lessons learned for the next process improvement.



**Conclusion.** An overall flowchart for trending, goal setting and achieving improvement is displayed above. The key feature is the use of the control chart to determine if performance is stable or unstable (has trends). When performance is stable, the responsible management should decide if improvement is needed. Management and

workers should work together to determine the actions needed to improve the process. After implementation, the effect of these actions is then checked through the ongoing use of the control chart.

This approach can be a very effective tool when workers and management partner in an ISMS environment.



### **Some additional reading:**

From "Deming's System of Profound Knowledge at Work" by Barbara Lawton

"Typically in businesses today:

- The information collected focuses on scorekeeping . . . for the purpose of reward or punishment, rather than for building knowledge.
- Predictions are in the form of a single number, ignoring the theory of variation, and hence tampering occurs.
- Most businesses, although they would like to be proactive, are reactive"

"The most important role of statistical process control, and in particular, control charts, is that of building knowledge. Observation in the presence of a theory or prediction, i.e. control limits, is an essential step in building knowledge. It enables the observer to identify unusual, but naturally occurring informative events (special causes) and for theories about the cause. The control limits or predictions developed from observation act as the baseline from which the effects of planned change are evaluated."

From "Total Quality or Performance Appraisal: Choose One"

by Peter R. Scholtes

The parts of the system are interdependent: If I force results here and now, I will pay a price there or later. As Brian Joiner emphatically asserts, there are only three ways to get better numbers: (1) improve the system, (2) distort the numbers, or (3) distort the system. Improving systems is much too complex a matter to place on an individual's performance standard. Systems improvement often requires a prolonged cross-functional effort involving many people and led by top managers. Distorting the numbers, a form of creative accounting aimed at looking good rather than doing well, is rampant in American business. Given a standard to reduce employee turnover, one vice president of human resources simply changed the formula for calculating turnover. This change reduced the turnover ratio while improving nothing. Distorting the system often occurs because performance appraisal encourages individuals to squeeze or circumvent the system for their short-term individual gain, rather than improve it for collective long-term gain. The sales force pulls out all stops to meet one quarter's sales quota and sales sag in the following quarter.

If my appraisal affects my income and career goals, I will seek to be measured against standards that are easy to meet or exceed, standards that are easily within the current capability of the systems within which I work. I will pick goals that will not require me to distort the system, distort the numbers, or improve the system. I will create the illusion of challenge around easy targets seldom perceived by the customers as improvement. Now imagine everyone choosing easy targets. The net result is a year without challenge. The collective rhetoric describes highly ambitious goals, but the company and its customers don't advance at all. Individual standards risk the twin perils of distorting the system on the one hand or mediocrity on the other. The only legitimate alternative--improving the system--will not result from so simplistic and superficial an approach as performance evaluation.