CHAPTER 17

APPROACH TO 6σ QUALITY

17.1 EVOLUTION OF SIX SIGMA QUALITY APPROACH

The concept of Six Sigma quality was evolved by Motorola Corporation U.S.A. Its evolution lies in a classic stretch target set in 1981 by Motorola's CEO, Bob Galvin, in order to affect a tenfold improvement in product-failure levels over a 5 year period. Bill Smith, an engineer at the company, realised that such results could be obtained only after going into the core of what caused defects in the first place. So, he conducted a statistical correlation between the field life of a product and the number of flaws that have been detected and corrected while the product was being manufactured. He concluded that if a product has been found defective and corrected during the production process, chances were high that other defects had been missed and would show up later during usage.

On the other hand, error-free products rarely failed in the first 3 years of customer-usage. Evidently, the simplest way to prevent product breakdowns was to ensure that the process prevented defects of any kind, making detection and repair redundant. External support for this argument came from the best-in-class benchmarking that Motorola had been conducting simultaneously. It showed that total quality companies were turning out products that had not been reworked at all.

To minimise and, ideally, eliminate defects from the manufacturing process, Mikel J. Hary, introduced the concept of Six Sigma to Motorola. The idea was to set a steep quantitative target for all processes and then, break each process into smaller and smaller sequences, each of which could be examined for their potential for errors and changed/modified to eliminate that potential. Thus, breaking down and studying processes is a key element of result-oriented quality programmes. This helps in tracking down the root cause of defects.

Until 1994, Six Sigma remained a closely guarded secret at Motorola. The outside world knew about, but not how to use it. Pioneers like Motorola reported saving of upto $2 billion over 10 years of implementation while a recent convert like General Electric reported $750 million saving in the costs in 1998.