does not mean that individual parts do not wear; they do. It means that the ages at failure are distributed in such a way that there is no value in imposing a preventive maintenance task. In fact, in a large number of cases, imposing an arbitrary preventive task increases the average failure rate through "infant mortality."

The Mean Time Between Failures (MTBF) is often used as the initial basis for determining PM interval. This approach is incorrect in that it does not provide any information about the effect of increasing age on reliability. It provides only the *average* age at which failure occurs, not the most likely age. In many cases a Weibull distribution, as used by the bearing industry to specify bearing life, will provide more accurate information on the distribution of failures. The best thing that can be done if good information on the effect of age on reliability is not available is to monitor the equipment condition.
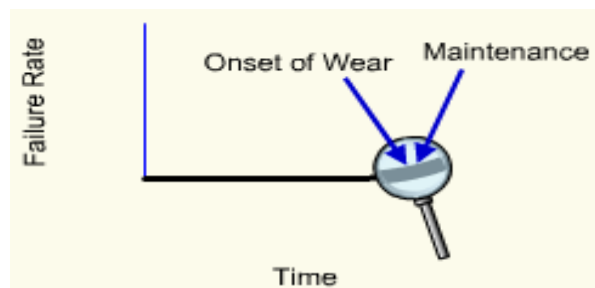
3.8   Predictive Maintenance (PdM)

Also referred to as Condition-Based Maintenance.

3.8.1   Predictive Maintenance Philosophy

a) Schedule maintenance activities when mechanical or operational conditions warrant
b) Repair or replace damaged equipment before obvious problems occur

Predictive Maintenance (PdM) is typically a non-invasive task intended to identify a specific condition of an asset. At the conclusion of a predictive task, the asset remains 'good as old'. Predictive maintenance improves on preventive maintenance by using actual equipment performance to determine when maintenance should occur. With this strategy, periodic or continuous monitoring detects the onset of wear or degradation, and the information is then used to predict potential problems and the best time for maintenance. Predictive maintenance is typically used where failure cost is high.

Advantages of this approach are that it works very well if personnel have adequate knowledge, skills, and time to perform the predictive maintenance work, and that it allows equipment repairs to be scheduled in an orderly fashion. It also provides some lead-time to purchase materials for the necessary repairs, reducing the need for a high parts inventory.

Figure 3-4: Predictive Maintenance Philosophy

Monitoring for predictive maintenance is available for rotating equipment, electrical equipment, process equipment, transmitters and valves, and other equipment types.

Advantages:
a)   Increased component operational life/availability