Abstract
This paper discusses the need for an integrated maintenance strategy. The method of developing this strategy is then explored, highlighting the matching of key success factors for maintenance to the overall business objectives. A vision for the future is then developed taking into account reliability requirements of key equipment and the trends and advances in condition monitoring and diagnostic engineering. An analysis of the differences between the current position and the vision becomes the basis for maintenance strategy, setting goals and timescales.

Keywords: Maintenance Strategy, Strategic Process, Diagnostic, Philosophy, Mandate, Policies, Objectives, Implementation.

1 INTRODUCTION

Despite the existence of condition monitoring techniques for decades, predictive methods of maintenance have not generally been included as part of an integrated maintenance strategy, with some notable exceptions.

However this will change in the 1990s. Catastrophic failures, such as Piper Alpha and Bhopal, or major commercial failures, such as recent contaminations of food products, where it appears ineffective maintenance has played a part, have meant that breakdown in many industries is no longer an acceptable circumstance. Business competitiveness, combined with advances in condition monitoring, make it a financial necessity for all significant operations to develop an overall maintenance strategy designed to eliminate unplanned equipment stoppage.

2 THE PRESSURES FOR IMPROVEMENT

Pressures to develop a maintenance strategy designed to improve effectiveness come from both inside and outside the organisation.

Internal pressures come from many sources. The extensive use of mechanization and automation reduces direct labour costs but increases maintenance costs. The availability of low cost IT brings
out, previously hidden, information relating to downtime costs. Modern manufacturing techniques and philosophies like Just-in-Time, Total Quality or even MRPII cannot be successfully implemented without high standards of equipment reliability and availability.

The sources of external pressure are just as varied. The competitive threat goes without saying, but what of globalization and the liberalization of trade both in Western Europe in 1992 and in the rapidly changing Eastern bloc. Closer to home the pressures of government legislation and the environment lobby are ever increasing, and of course customers are expecting shorter lead times, increasing flexibility and improved service.

These pressures apply in varying degrees to the competition in the rest of the industrialized world and so should not be feared - provided that in all aspects of manufacturing we are better than most and striving to be best.

3 HOW GOOD ARE WE?

Intuitively we would perhaps expect that we are less effective than Japan and West Germany in our maintenance efforts but a recent survey by IMEDE ranked the UK 16th out of 22 industrialized nations.

The airlines, because of a combination of legislation and high operational costs need to keep aircraft flying, utilize some of the most advanced maintenance strategies with extensive predictive maintenance and advanced parts planning and scheduling. Some large industrial companies with high maintenance spends or high downtime costs have similar proficiency. In general however British industry operates a system of planned maintenance which is not geared to need and is not given the priority it requires.

There can be little doubt that a maintenance strategy supporting the overall business objectives is an essential element of a business plan to increase profitability.

4 THE STRATEGIC PLANNING PROCESS

4.1 The Current Position
An overview of the strategic planning process for physical resource management is shown in Fig.1. The first step in this process is the examination of the environment and context in which maintenance functions operate. This will provide a backdrop against which the ensuing work will be carried out.

To determine those factors which must be improved requires a comprehensive and objective review of the current activities. The effectiveness of maintenance can be viewed as a continuum, from a state of "innocence" through "understanding" to "excellence". The objective of the review is to determine where the maintenance function lies in the continuum and how far it can be taken towards excellence over a period of time.