# EXSYS Case Study

Mechanical Equipment and Systems Diagnosis

An Engineering Company

Several knowledge automation systems were developed that contain the knowledge of seasoned mechanical engineers and equipment troubleshooters. For this reason, such systems are valuable in helping operators and maintenance personnel find the sources of mechanical and electrical equipment malfunctions both quickly and accurately. These systems help diagnose and locate problems in electrical, mechanical, or fluid systems.
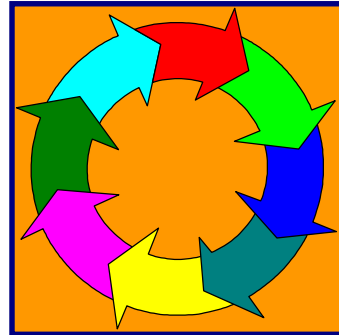
The *Rotating Equipment Vibration Advisor* for example, is a knowledge automation system for rotating equipment including centrifugal pumps, industrial fans, steam turbines, electric motors, and compressors. The system helps interpret a machine's vibration patterns derived from standard vibration analysis. It uses these patterns, together with observed symptoms, to arrive at an accurate diagnosis of equipment problems. The system:

♦ Works with interactive user input

♦ Reads vibration-measurement-data files

♦ Derives data from vibration-analysis instruments

PumpPro, a generalized centrifugal pump diagnostic knowledge automation system, is distributed to over 400 client installations. The system is used for problem-solving and maintenance personnel training. *PumpPro* contains rules for identifying the symptoms and causes of pump problems, and suggests remedies. The system also includes extensive tutorials on subjects that may be unfamiliar to pump maintenance personnel, but is important to problem identification and solution.