Written by Neil Cooper, General Manager, Avantis unit of Invensys Process Systems
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With new and increasingly more powerful on-line equipment diagnostic tools becoming available every year, process manufacturing industries now have the opportunity to integrate this criticalequipment condition information into their asset management strategies. These strategies can support more business- driven approaches aimed at improving overall financial performance. Much work still needs to be done, however.

Until now (in process manufacturing operations at least…), the focus has been on relatively limited and specific diagnostic monitoring of intelligent field devices and large rotating equipment. This is due largely to the widespread availability of highly capable, fieldbus-enabled condition monitoring tools, such as vibration, temperature and pressure monitoring and fluid analysis, all of which can be integrated into the control system strategy to react to critical changes in the readings.

But, within an overall asset management strategy, it's important that real-time condition monitoring practices go beyond intelligent field devices and large rotating equipment to encompass all plant production assets. These should include all sensors and actuators (regardless of the vendor); rotating and non-rotating equipment, such as pumps, motors, compressors, turbines, mixers, dryers and heat exchangers; even entire process units.

The real goal is to move to predictive and proactive decision-making based on developing trends versus our current reactionary approach. This means that large (and often overwhelming) amounts of real-time diagnostic data now available must be collected, aggregated and analyzed, then put into proper context and made available to other plant and enterprise systems. In addition, we need to manage and control the resulting actions to manage risk and support our continuous improvement efforts, bringing together Maintenance, Operations and Engineering. By pulling these three aspects together—collection, analysis and action—we move from condition monitoring to "condition management" based on real-time asset intelligence.

The key lies in developing a knowledge management capability that captures the expertise of today's highly experienced operators, engineers and maintenance technicians. While this capability is important today, it will become even more critical in the future as our industrial plants struggle to maintain current levels of asset utilization and availability with an ever-shrinking pool of skilled and knowledgeable personnel due to an aging workforce and retirement of many of our most experienced people.

By combining this knowledge with an integrated view of the entire operation from both the business and operations perspectives, we can move to an environment where more informed decisions can be made in a more timely fashion. From this base,we will be well-positioned to manage the risks inherent in the process industries (i.e., health and safety, regulatory, financial and environmental) while delivering improved business performance and shareholder value. **MT**