Asset Management to go

Field-level sensors and actuators are often not taken into account when considering asset management and the total cost of ownership. But this is will change massively in the coming years because of the great savings potential to be found in reducing production downtimes and failure costs and ensuring easy-to-plan maintenance. NAMUR recommendations NE 107 and NE 91 show that providers of plant equipment are obliged to take action. As an automation and communications specialist, Softing already offers an extensive range of products which can be used to create a plant asset management system based on HART, FOUNDATION fieldbus (FF) and PROFIBUS solutions.

Over the years, plant constructors and operators have consistently pursued two main goals: to lower installation costs and to optimize production conditions. This has led to the widespread use of fieldbuses in the process and manufacturing industries, as well as to intelligent automation devices, among other things. But the savings potential in this field has been largely exhausted.

Intelligent maintenance concepts, on the other hand, still offer tremendous potential for added value. This potential must now be tapped. In addition to increasing availability, it will be necessary to lengthen the interval between maintenance events, reduce the cost of failures and make it easier to plan maintenance and service work.

With the advance of intelligent automation components and mechatronic systems, an extensive amount of data is already being generated on all levels of the automation pyramid and, increasingly, in the field devices (sensors and actuators) themselves. Many of these components provide parameterization options as well, and some have recently included diagnostic and analytic functions – but usually only in proprietary formats. Vendor-specific software is therefore often needed to access these functions and the information they generate. Furthermore, locally available data on the production process doesn't always offer a reliable picture of the actual status or maintenance requirements of the automation or plant components.

If modern methods of preventive or condition-based maintenance are to receive more widespread use, the available information must be centrally collated, evaluated and given to maintenance providers in an understandable form. But there is no way to handle such tremendous amounts of data without special software.

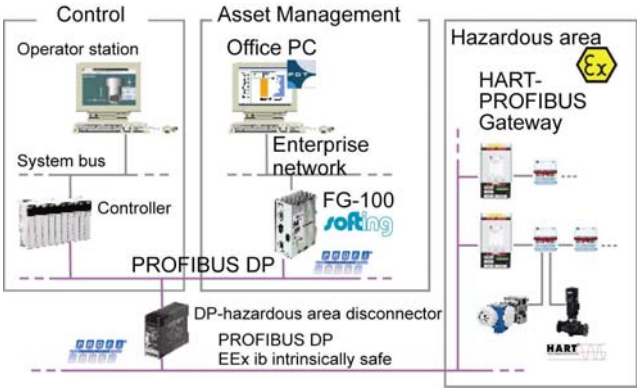
However, there is a problem facing the manufacturers and users of software for managing plants in a value-preserving way: Asset or life cycle management systems can only be used consistently and effectively if they provide easy access to parameterization, status and diagnostic data.

NAMUR, an international association of users of automation technology in the process industry, has published recommendations describing the functions

and features that asset management systems should have (NAMUR recommendation NE 91, "Requirements for Online Plant Asset Management Systems") and the types of diagnostic functions and status reports they should offer (NE 107, "Self-Monitoring and Diagnosis of Field Devices"). It is particularly worth noting that NE 91 calls for minimum integration effort for asset management systems. To address this, the FDT Group has done a great deal of beneficial preliminary work with its FDT/DTM concept.

If an asset management system is to collect and consolidate all information on the operation and life cycle of devices and the status of plant components, fieldbus systems must be included in the strategy and connected to the system. Interface cards and gateways play a key role here; the former make it possible to connect PCs to bus systems, while the latter enable the integration of bus systems in Ethernet structures.

An approach which incorporates FDT and fieldbuses in an asset management system is particularly advantageous in potentially explosive environments. For example, HART devices connected over Profibus via remote I/Os can be conveniently parameterized and monitored from an office PC through a gateway with the help of FDT. This makes it unnecessary to enter a hazardous area with a potentially unsuitable programming device after a failed component has been replaced.



Separate access to HART devices in hazardous areas

However, an FDT-based asset management system or innovative maintenance concept will only be effective if all plant components can be linked in a multi-vendor environment. To this end, a partner is required who can provide interface cards and gateways for the different fieldbuses and offer the necessary "FDT drivers" or DTMs (Device Type Managers) for the involved devices, gateways and interfaces.

Softing deftly meets these demands by offering a very comprehensive FDT/DTM suite for the efficient, convenient configuration and diagnosis of PROFIBUS, HART, FOUNDATION fieldbus H1 and HSE devices. This enables users to accomplish a wide range of tasks with just a single supplier. Softing's DTM Suite provides GatewayDTMs not only for the company's own interface cards, which come in a wide variety of form factors, but also for numerous Ethernet gateways such as Siemens components DP/PA Link (transition between PROFIBUS-DP and PROFIBUS-PA) and ET 200 (remote I/O system to connect peripheral devices). Users value the availability of a wide spectrum of gateways and interface cards as it enables them to choose the solution that best fits their applications. Combined with the communication DTMs for PROFIBUS and FF H1 and FF HSE, the comprehensive FG-100 Profibus and FG-100 FF/HSE Ethernet gateway family enables users to access process peripherals across bus borders with centralized parameterization or asset management software. As Softing's DTMs are suitable for use with CX-PROFIBUS, fdtCONTAINER, FDT Navigator, FieldCare, FieldMate, PACTwareTM, SmartVision and other FDT framework applications, Softing's products offer users virtually unlimited options for engineering applications as well.

With the help of the Softing FG-100 FF/HSE Linking Device and the communications and gateway DTMs which are optimized for it, even H1 field device information can be displayed in a standard FDT container.

Softing AG has not only a wide spectrum of products but also extensive resources for supporting users and expanding its range of offers. The company is represented in key countries all around the world and also has its own subsidiary in the USA. This means that users can be sure of receiving fast, unbureaucratic support worldwide.

Summary
FDT-based asset management systems can save a considerable amount of time and money in every phase of a plant's life cycle. They enable maintenance technicians to carry out their tasks more effectively and conveniently. The hardware and software necessary for connecting the field devices is already available on the market. Anyone who doesn't act now will not be able to make optimal use of their plant and may be at a permanent competitive disadvantage.

The authors:
Dipl.-Ing. Jürgen Lange, Product Manager, OPC and FDT, and Dipl.-Ing., Dipl.-Wirt.-Ing. Oliver Roth, Industry Manager, process automation