Written by 'Sunny' Hemant Gosain, Oracle Corporation
Tuesday, 01 November 2005 00:00

Raising the levels of "asset intimacy" among service providers is crucial where maintenance is concerned.

Companies typically will embrace a business trend in an effort to move ahead of the competition, achieve long-term savings and, in some cases, improve service levels. Among today's more noteworthy trends is outsourcing of maintenance. What is often overlooked, however, is the impact that this type of outsourcing has on the quality of asset information management.

While a majority of businesses traditionally have not kept all plant maintenance operations in-house, in some sectors today, over half of equipment maintenance is outsourced. The public sectoralso is moving in this direction—even in areas such as defense operations where highly sensitive information is the norm.

Companies that outsource maintenance operations face challenging questions regarding asset information management, including:

- How do you monitor third-party maintenance providers to ensure accuracy, safety and quality compliance?
- How can service providers be efficiently integrated into in-house maintenance and repair operations?
- What is the best way to manage service levels without direct control of contracted resources?
- Does the spread of outsourcing mean that in-house maintenance, repair and overhaul (MRO) is gradually losing critical technical skills?

At the same time, the move toward outsourcing places a new burden on service providers by requiring them to now know more about their customers' assets — in real-time — than in the past. But, without broad access to asset information, such as engineering documentation and service histories, service contractors are unlikely to be able to deliver the sophisticated maintenance strategies and cost savings that their customers demand. How will service providers achieve new levels of "asset intimacy" without a radical re-thinking of asset information management?

Can contractors effectively add value to maintenance and repair operations over the long haul, or will asset service levels decline as a result of outsourcing?

Effective management of expanding service networks and the complexities that directly result from outsourcing require a sophisticated collaborative asset management solution. Simply stated, companies need to build tight coordination between the activities of in-house maintenance workforces and outsourced service providers.

3 levels of "maturity"
The relationship between service and maintenance information systems is often poorly aligned. Both types of systems facilitate maintenance and repair services for equipment owners and operators, but they operate under different business conditions. These differences ought to have no impact on the quality of asset management, but, because of built-in limitations, they do.

While today's service systems support many customer relationships and complex contractual arrangements, such as service-level agreements and entitlements, maintenance management systems normally support only a single customer (i.e., the enterprise) and relatively simple financial arrangements, if any. Depending on the degree of a company's maintenance outsourcing and the complexity of its assets, enterprises fall into one of three asset management maturity categories.

- Companies in the first category—Activity-Based Asset Management—utilize the simplest maintenance and service operations that require little more than the ability to schedule and track activities and costs.
- At the next level—Siloed Asset Management— information management becomes more robust, but information remains siloed within organizations, addressing either the needs of service providers or in-house maintenance, but rarely both.
- The final asset management maturity category is Collaborative Asset Life Cycle Management. At this stage, maintenance and service operations are required to increase their collaboration and information needs to converge. Increasing the size of the service network or the complexity of the assets requires an enterprise to effectively "climb" the maturity ladder or risk asset reliability and maintenance cost problems.

Collaboration is essential
There is a great difference between managing an in-house workforce and relying on a service network. For example, engineering managers will run into problems when they increase the amount of maintenance they outsource, yet they continue to manage maintenance operations

as if nothing had changed. Only those companies that understand the significant differences between maintaining an internal workforce and outsourcing will be able to successfully lower overhead costs without jeopardizing safe and effective plant operations.

With outsourcing, plant engineers are forced to control service supply costs and manage a network of providers with limited visibility and control. Meanwhile, they must be equipped to guarantee acceptable asset service levels, plant safety and regulatory compliance. The result is often an increase in maintenance errors and diminished responsiveness that may endanger customer service levels.

Existing maintenance management systems, never designed to manage across extensive outsourcing, simply don't provide a complete view of service status for the enterprise or the service provider. While outsourcing may lead to savings in the short term, it is likely that asset information gaps will gradually erode assets, causing capitalized asset costs to rise. To overcome this challenge, it is important for companies to implement a collaborative asset management solution.

The key to maintenance-service collaboration is access by all stakeholders to critical, accurate asset information , such as recent and historical service records, engineering documentation, manufacturer service bulletins, certifications and regulatory notices. To achieve new levels of collaboration between stakeholders without weakening business operations, companies are beginning to consider a new approach, the previously-referenced collaborative asset life cycle management. An effective strategy of this nature includes two core components: asset data hubs and unified applications to provide real-time information.

Uniting disparate systems
Collaborative asset life cycle management calls for service and maintenance partners to eliminate duplicate data, accommodate both structured and unstructured information and facilitate communication among disparate business systems to process the constant flow of new information from outside sources, including equipment manufacturers and regulators. To accomplish those goals, powerful asset information management data hubs are necessary.

A data hub is a real-time processing engine that automatically verifies, cleanses, de-duplicates and merges information—and then synchronizes all systems. Service and maintenance rely on their own business systems; data hubs that are online and easily interoperate across different systems help to consolidate information from all disparate sources to provide business insight

about best maintenance practices and service histories.

It's also important to note that technology must support ubiquitous computing, including spatial information for geographically dispersed assets, embedded sensor data, RFID and equipment telemetry. Much more than today's mobile computing, ubiquitous computing can locate assets whose whereabouts are not easily known, update service supply chain status, optimize global multi-echelon spare parts inventories, and cut down the significant travel, research and waiting time associated with maintenance and service execution.

Consolidated enterprise view
Information systems designed for collaborative asset life cycle management must incorporate unified data models and computing standards even more than in the past as simple semantic transaction interfaces aren't robust enough for the information-sharing that is required. Extensible Markup Language (XML) provides an alphabet and perhaps grammar, but it's not yet a full-blown language that all computers share. To date, SQL and XML have provided valuable windows that we can see and walk through, but not the data highways we can drive across. Service Oriented Architecture (SOA) and Web services will pave the way for the much needed unification of applications.

In their early years, enterprise resource planning (ERP) suites were perceived as only a partial solution because, instead of eliminating information, they actually made the wealth of information bigger. Mature ERP suites enable enterprise information to be consolidated in one place and dramatically reduce or completely eliminate silos of asset information. Years ago, when banks did this with consumer credit information, they tapped into a huge opportunity to better serve their customers.

Collaborative asset life cycle management requires the same approach with manufactured product information, especially for complex equipment that has long lifecycles. Only by unifying asset information can an entire service network gain the real-time information quality, compliance and control needed for sophisticated maintenance strategies and high asset service levels.

Conclusion
As the move to outsourcing maintenance and service continues, so do the challenges of managing asset information effectively. IT systems that successfully enable collaborative asset lif cycle management between an organization and its service partners must accurately

consolidate asset information from disparate systems and also embrace unified data models and computing standards.

Innovation —particularly in the area of collaborative asset life cycle management—has enabled information technology to be less costly and more scalable. When coupled with a defined business strategy, software solutions can facilitate the collaborative asset lifec cycle management vision at a reasonable cost.

Technology plays a critical role in maintenance and repair operations. In particular, utilizing asset data hubs and unified applications will facilitate advanced collaboration between a company and its outsourced service provider. Following this path, a company will be able to achieve the very critical stage of Asset Information Management maturity.

'Sunny' Hemant Gosain is senior director, applications development, at Oracle, and currently the head of development of the company's enterprise asset management, asset tracking and supply chain cost management products. Before joining Oracle, he was a senior consultant with MCI Systemhouse, where he led and managed several IT projects and ERP implementations. Telephone: (650) 506-9284; e-mail: hemant.gosain@oracle.com