HEAD GAMES

Strategic considerations and tactical moves influence whether to outsource MRO

What business are you in? It's a time-honored question designed to help companies strip down to their core competencies, often right before they downsize or outsource every function that isn't one.

Equipment maintenance, by its very nature, isn't typically a core competency for manufacturers. Their expertise most commonly lies in product development, procurement, manufacturing processes, or distribution. Nigeria LNG (NLNG), for example, is owned by a variety of multinational companies. It produces and delivers liquefied natural gas — its core competency — which wouldn't be possible or profitable without proper attention to maintenance and reliability.

"On-site we have specialized equipment from vendors," explains Olawe Tula, competence assurance coordinator at NLNG's (www.nlng.com) facility in Bonny Island. "When we do MRO on this equipment, the vendors are brought in to carry out such tasks. An organization should outsource MRO when there's a dwindling of competent maintenance personnel, when the scheduled MRO requires more manpower than can be supplied internally, or when the frequency of breakdowns and failures are high and the manpower required isn't available at the time of request." The question is whether the outsourced MRO cost and benefit outweigh the advantage of managing and controlling that resource in-house, he says.

"The primary reasons to outsource should be based on core competencies and creating value-added tasking for employees," agrees Ron Verweij, maintenance engineer at Heineken Brewery den Bosch, the Netherlands (see the Heineken case history at www.plantservices.com/heineken).

"Trust is a key part of partnerships," explains Ben Keizers, product marketing manager, services, Endress+Hauser (www.us.endress.com). "If that trust is established, a high percentage or even 100% of MRO services could be outsourced over time. Performance agreements are a basis for these kinds of partnerships." This is exemplified by the partnership between Heineken and Endress+Hauser in the Netherlands. "Heineken wanted to focus on its core expertise, which is producing excellent beer," says Keizers. "Instrumentation isn't a part of Heineken's core competencies, so Heineken preferred to outsource instrumentation maintenance and calibration. Now Heineken is expanding this partnership to its plants in other parts of the world, such as South Africa. This partnership is based on continuous improvements, which means tracking asset life cycle information is critical."

Most organizations probably need to outsource when they realize the required workload exceeds 80% of the required workload hours, explains Dan Stedham, asset optimization (AO) services global program manager, operational excellence/AO services marketing manager — Emerson Process Management (www.assetweb.com). "Unfortunately, most organizations don't know what their definitive required workload is, unless they go through a prioritization and task optimization process," he says. "Another way to look at when to outsource is to look at the repair cost per unit of work. If an organization finds that its own repair functions cost more per unit of work than the services provided by an outside maintenance provider, the shift becomes attractive."

Sometimes, however, organizations go beyond that point before realizing the need and benefit, says John Sorenson, director of service operations at Honeywell Process Solutions (hpsweb.honeywell.com). "Some indicators will be increased overtime of maintenance personnel, degradation of equipment reliability, increased complaints from operations, or the simple reason that the maintenance team is consumed with 'firefighting' and spending less time on reliability-based activities," he says.

Tracking the life cycle of assets is critical when moving from a reactive maintenance mindset to a service management program, continues Sorenson. "Firefighting consumes a tremendous amount of time and energy, while pulling the focus and key resources away from proactive programs," he explains. "Partnering with an experienced vendor creates advantages, such as prioritizing activities and processes such as tracking asset life cycles that feed into the larger reliability-based programs."

And so begins the strategic chess match between cost and control. Many organizations move slowly through the strategic considerations that define what they will manage and control with their own resources and which services they will contract another company to perform.

MY KINGDOM FOR A HORSE

To some companies, maintaining control of MRO is a strategic move that outweighs the potential trade-off that outsourcing could create in cost savings.

But many organizations see contracting maintenance services as a strategic advantage. According to a 2009 study conducted by ARC Advisory Group (www.arcweb.com), the two most common reasons for outsourcing are to gain access to specific skills (23% of respondents) and to focus employees on core needs (21%) — once again indicating the role core competencies play in contracting MRO services.

ALMOST TWO-THIRDS OF MAINTENANCE CONTRACTING AGREEMENTS ARE ONE TO THREE YEARS IN LENGTH.

"If manufacturing is the core business, they don't want to focus too much on maintenance, especially because modern production lines are becoming increasingly complex and might require highly skilled personnel and special service tools and equipment," says Rowena Coode, portfolio coordinator, product and process management, for Germany's SEW-Eurodrive (www.seweurodrive.com). "Especially if certain skills and resources are used only from time to time, the customer faces the danger that the skills become outdated — know-how fades — or resources can't be fully utilized."

The service categories that are contracted vary, but between a quarter and a third of companies participating in the survey indicated they outsourced cleaning and refurbishing (34%), fix or repair (33%), inspections (30%), equipment diagnostic services (30%), tuning and calibration (29%), preventive maintenance (28%), and predictive maintenance (25%).

Figure 1. Paper mills are in the paper business, and MRO service providers might be better equipped to recruit maintenance personnel because it's a core competency. (ABB)

"If you're producing paper or steel, that's your core business," says Magnus Pousette, vice president of reliability services in North America, Australia, and New Zealand for ABB (www.abb.com), which is contracted to do almost all of the maintenance services for paper and pulp giant Stora Enso's Finnish plants. "You'll have a problem recruiting the same level of craftsperson for maintenance because you're not a maintenance company and can't provide the same career opportunities as a company that specializes in maintenance. This is when you should look at outsourcing."

ABB has a career path for maintenance and reliability, explains Pousette (Figure 1). "If you look at your OEE, which is how you measure efficiency or reliability, and don't see continuous improvement, you need some new thinking around it and somebody who will commit to your plant's productivity," he says. "One way to do that would be to outsource your M&R department. If your maintenance costs are going out of control, if you're starting to have quality problems in your maintenance department, if you're starting to get a lot of breakdowns, if you want to make a strategic move and have a big effect in your organization or change the culture, this can help because no matter what the service provider will bring, it will bring a new way of thinking to change the current culture."

Outsourcing for short-term financial gains isn't a good reason to outsource, says Pousette. "If they're cash-hungry, they might outsource their storeroom, but that's a bad reason because you're only concern is to free up cash now," he says. "The best reason to take the next step is if it will affect your overall equipment effectiveness positively."

BLACK AND WHITE AND READ ALL OVER

Outside the United States, organizations often have different maintenance needs and thus the contracted services might differ.

"The make-or-buy decision can't be reduced to a mere cost comparison," says Andreas Reddemann, head of global service at Germany's SEW-Eurodrive. "Criteria to be considered include the required know-how — skills or qualification — the required availability of systems as well as reaction times in emergency, the criticality of system, and the continuity of the resources required."

Typical industries in Europe that contract maintenance services are building materials manufacturers, food and beverage, automotive, and pulp and paper, explains Michael Herbort, business development for service, SEW-Eurodrive.

"The chemical industry also is demanding," he says. "All of these industries require reliable production. Especially in Germany, there's a big focus on the production. Most companies want to optimize their preventive and predictive maintenance."

SEW offers an assortment of condition monitoring products and services. "We have mobile condition monitoring solutions, which enable us to do an inspection at a specific point in time," explains Coode. "We also have an arrangement of permanent condition monitoring solutions like vibration analysis, oil-aging analysis, and brake wear analysis. These are typical products for customers that want to avoid over-servicing to save on costs and want to avoid unnecessary interruptions in production."

In Germany, most ABB customers contract on a plant-by-plant basis with the head of the local maintenance department, says Reddemann.

"Typically end users have multiple-brand drive technology installed in their systems — components that have accumulated sometimes over many years," he says. "Today, many system operators prefer to have one service provider who carries out all the maintenance for the installed drive technology in the plant, along with that of competitors. In Europe, it's common practice for us to take on such contracts, especially for customers who already have a significant share of SEW-Eurodrive components installed in their systems. Our portfolio includes repair, overhaul, and predictive maintenance."

OPENING MOVES

Just like chess players, who rely on strategic openings such at the Latvian Gambit or the Sicilian Defense to develop and control the game, organizations approach their maintenance outsourcing strategies with different plans of attack.

"Our customers who are well-organized and focused usually pick one provider," says Rob Bennett, product manager, Rockwell Automation Asset Management Portfolio (www.rockwellautomation.com). "For companies with multiple facilities, we have contracts where it's us and many of our competitors, site by site. From a reliability perspective, you can tear into the data on a deeper level once you're across multiple locations."

Stora Enso outsources its maintenance and reliability for six paper mills in Finland to ABB. "This has given us the ability to build their corporate reliability function," says ABB's Pousette. "The two most remote plants are about 600 miles apart, so those two aren't close, but the language is the same. If you have plants that are close, then that would give you certain advantages like pooling resources, hosting more cost-effective training, and not just sharing, but providing a 'show and tell' for best practices."

Many companies want service on a plant-by-plant basis, but some might want contracts for regional clusters, such as Austria and Hungary, explains SEW's Coode. "It really depends on the customer's maintenance philosophy," she says. "If the decision falls for a single outside contractor, the customer has the advantage that he only needs to deal with one supplier with whose service competence he is already familiar. At the end of the day, it's prerequisite that the service provider also have a local infrastructure." In Europe, the automotive, building material, and chemical industries often prefer a multiple-plant contract, she says.

"If work needs to be executed across multiple facilities in a number of countries, it's good to work with an international services contractor," says Endress+Hauser's Keizers. "This contractor needs to have uniformity or standardization of the performed services work in the different countries. For instance, you want to make sure that a flow meter calibration is performed the same way in India as in the United States or in China. We've set up standardization of our services work performed worldwide." Having the same standardization regarding how asset life cycle management is handled in the different countries is a must, he adds.

"In some cases, where maintenance practices are not well documented or enforced across an organization, an outsourced MRO company also will improve consistency of practice," ex-

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Figure 2. When a machine analyst collects vibration data from a forced draft fan at a 49 MW municipal waste combustion power generation plant in Haverhill, Massachusetts, it might be more cost-effective for that to be part of an outsourced machine condition monitoring program. (Azima DLI)

plains Joe Van Dyke, president of Azima DLI (www.azimadli.com). "Increasing the scale of MRO contracts can provide more favorable pricing to an enterprise, too," he says (Figure 2).

FIXED PRICE VS. T&M

According to the 2009 ARC survey, almost two-thirds of maintenance contracting agreements are one to three years in length. The interesting aspect of the contract is how the services are priced.

Forty-two percent of respondents said they use a fixed-price payment method, while 39% said they pay for time and materials (T&M). Even more interesting is that the leader-designated companies, those most often displaying best practices, were even more inclined toward fixed price by about 10%. "The people who do the fixed-price maintenance contracts are those in the top 20% in performance," explains Ralph Rio, research director at ARC.

Fixed-price projects are attractive to companies because the total project costs are defined up front, says Emerson's Stedham, while T&M is attractive when the scope can't be fully defined.

"Fixed price is desirable where budget certainty is a high priority," adds Azima DLI's Van Dyke. "Fixed pricing can be linked to the quantity or scope of assets tracked and type of maintenance, monitoring, repairs, or testing done. T&M allows for cost savings when and where assets are in good shape and require less in-depth action. The disadvantage of T&M pricing is its tendency for costs to escalate as particular asset problems occur. A good mix that allows for a low-cost fixed-price basis on standard repeated activities plus allowances for T&M on expanded scope might be the most effective solution."

Verweij's Heineken brewery uses T&M when the supplier needs only to execute the tasks and doesn't need to add value, he says. "Unit rate, or fixed price, saves time and discussion and is used in more result-driven contracts," explains Verweij.

Pousette says ABB never uses T&M to price its services. "It's counterproductive to the customer because it drives more time and more materials and more money spent," he explains. "We don't think it drives the right behavior in our organization. We then take the risk to pay for maintenance that might not have been planned because we manage it. Outsourcing is very much about who can manage the risk the best."