Tuning-up Lab Instrument Service

SELECTING THE OPTIMAL INSTRUMENT SERVICE MODEL MEANS FINDING THE RIGHT BALANCE BETWEEN COST, RISK, AND QUALITY.

Just as instrument technology is evolving to meet the changing needs of laboratories everywhere, so are the dynamics of instrument maintenance as lab managers seek the optimal balance of risk, quality, and costs. In recent years, four instrument service models have risen to prominence and a fifth, a blend of each has emerged:

- In-house Metrology Model
- Service Consolidator Model
- Independent Service Provider Model
- Original Equipment Manufacturer Service Model
- Integrated Service Delivery Model

Each of these choices offers advantages and drawbacks, and a clear understanding of how they relate to a particular lab or network of labs is vital to achieving optimal results.

Every experienced lab manager knows the considerable amount of time required to select and manage contracts for repair, maintenance, calibration, and compliance service for key equipment. Also, instrument maintenance ranks right up there with personnel costs among the biggest budget items for most labs. While commercial labs are facing increasing pressure to control these costs, service requirements must be assessed holistically — looking beyond the asset list to critical factors such as position in process and how each instrument’s downtime affects lab productivity.

Each laboratory’s requirements can vary due to factors such as past procurement policies, management changes, and how much effort has already been devoted to fine-tuning its instrument service program.

Imagine this scenario: You manage a lab that has ten liquid chromatography systems, two LC/MS systems and a full complement of ancillary equipment such as pH meters, centrifuges, and micro pipettes to support your staff of three analysts. You’re the third manager of this lab in ten years and, as it grew, the equipment vendor choice changed with each manager. In mid-year it’s smooth sailing. When it’s time to renew contracts, however, your personal productivity comes to a grinding halt as budgeting and negotiating contracts for each type of equipment dominate your work life.

If this sounds familiar, you’re not alone. Most labs employ a wide variety of analytical techniques (LC, GC, LC/MS, NMR, etc.) from several vendors. Therefore, it’s not uncommon for lab managers to spend a large amount of time directly working on contracts or working with procurement teams to secure service coverage for mission-critical systems.

Factors such as technology type, maturity, and the role each instrument plays in the workflow will help point you to the service model that will provide the best cost/benefit ratio.

IN-HOUSE METROLOGY MODEL

Many organizations have their own teams of engineers to service their mainstream instru-
This in-house metrology model often offers fast response because the engineers are usually on-site. Another benefit of this approach can be quality: service engineers are often trained by the original equipment manufacturers (OEMs) under ‘shared care’ programs which provide training and certificates suitable for audit purposes. In many cases, shared care programs also provide in-house engineers with service notes or special training topics to help keep them current. While most in-house metrology teams are focused on scheduled, periodic tasks such as preventive maintenance or calibration, some also repair instruments. While in-house servicing reduces the need for OEM service contracts and associated costs, lab managers also need to consider the real cost of the in-house metrology group which can be larger than expected.

Depending on the responsibilities and scope of an in-house service team, the fully weighted cost of a headcount must be weighed against the costs of other instrument service models. Many companies find that outsourcing instrument service is the most economical approach when the costs of staffing, training, infrastructure, and parts inventory are considered. The bottom line: does the rapid response of an in-house team outweigh the costs and the risk burden? The organization must also consider whether instrument service fits within its area of core expertise.

SERVICE CONSOLIDATOR MODEL
The Service Consolidator model is often employed by larger labs or whole sites. You may hear this called the service aggregator model or the service insurance model, as it’s based on actuary tables compiled by these service organizations to guide contract purchases. Often the favorite service model of procurement organizations, the Service Consolidator model generally reduces service contract spending by 15-25% compared to other models. They do this by assessing the customers asset list against insurance-like actuary tables. By considering the annual failure rate and repair costs for each piece of instrumentation, the consolidator is able to plan a service program for the site that selectively chooses OEM service contracts for some instruments while calculating the risk of paying for time and materials coverage on others. By reducing the price of the service program, the Service Consolidator Model focuses predominantly on the cost variable in the instrument service value equation.

There can be tradeoffs, however, in terms of risk, quality, and convenience. Although, service consolidators provide a single point of contact for service-related issues, they typically do not offer any direct instrument service themselves. When a service event is reported to the consolidator, the laboratory must get approval from the consolidator to get a quote from the OEM or other third party for service. Once the quote is received and provided to the consolidator, the repair must be approved before the lab can schedule a service engineer to visit. Upon completion of the service event, the consolidator reconciles invoices and can reject those deemed outside the scope of the repair. While the reduction in service spending is attractive to procurement departments, the service process under the consolidator service model can be costly to lab managers in terms of lost productivity. Managers are more involved in service events, often interfacing between the OEM and the consolidator, and must typically do initial triage themselves before escorting an OEM engineer into their lab. In the event that repair is required on a piece of instrumentation on which the consolidator did not take a service contract, the impact on lab productivity can be major. OEMs typically offer priority response only to contract customers, so if repairs are required on a time and materials basis, labs may expect delays in dispatching service engineers to the site. This is a recipe for tension between the laboratory, the consolidator, and the original equipment manufacturer.

INDEPENDENT SERVICE ORGANIZATION MODEL
The Independent Service Organization (ISO) model is based on service delivery through regional organizations that offer support services for a variety of instrumentation, usually within a limited distance from their corporate office. The greatest attraction to the ISO model is price, usually the lowest of the service model options. ISOs tend to be small businesses, able to offer lower-priced service because they don’t carry the overhead of larger companies. In addition, because ISOs are usually operated and staffed by engineers formerly employed by a variety of OEMs, they often can service more than one vendor’s instruments or technology. This helps lab and procurement managers reduce the number of service agreements they deal with by consolidating services with the ISO.

This scenario tends to work best with relatively mature, mainstream HPLC and GC instrumentation. Finding an ISO to service more complex instrumentation like the LC/MS or any custom instrumentation is more challenging.

There are other tradeoffs with the ISO model. First, there can be more risk when it comes to quality because ISOs do not have factory support for instrument repair, maintenance, or compliance. While many ISO engineers are factory trained, this ended when they left their OEM jobs. Some equipment manufactures are even considering limiting certification to the period an engineer is directly employed by them. The rationale is that only while employed by the OEM does an engineer receive service notes, bug fixes, and new product skills training. This can be critical, especially in a regulated environment.
Another area that deserves scrutiny is services developed directly by each ISO. The degree to which each ISO follows stringent standards varies, so labs are well-served by conducting due diligence in this area. Lastly, due to their size, ISOs are often not a viable solution when service standardization is required across labs at different sites, states, or countries. Just as size can be an asset when it comes to holding costs down, it can also be a liability when harmonization is needed across multiple locations.

OEM SERVICE MODEL

Having each key instrument serviced by its manufacturer falls at the high quality/low risk end of the service model spectrum. It also falls at the high cost/high administrative load end. The OEM service model is based on the premise that labs will receive the highest quality service from the companies who manufactured their systems. While OEM service contracts are often more expensive, they are also considered to be the lowest-risk service option. Factory-trained and supported engineers have access to product bulletins, service notes and R&D personnel, service fixes, plus warehouses of parts. These strengths, combined with the global infrastructure of many of today’s larger instrument suppliers, make the OEM model the frequent choice for highly complex systems or those that are critical to laboratory productivity.

The tradeoff for this low-risk, high-quality service is cost. There is more to this cost component than the price of service agreements alone. When considering the OEM service model, it’s important to look beyond the hard costs such as replacement part prices, contract prices, and labor rates. To clearly assess the viability of this model for your laboratory, you must also address the soft costs associated with contract administration and analyst productivity. Time truly is money, and understanding the number of hours spent purchasing and managing service contracts from multiple vendors is critical. Even if you spend as little as 15 minutes discussing contract options with an OEM sales specialist, this time adds up quickly when you do this for 80 or 150+ systems in your laboratory. In addition, analyst productivity is impacted when your service program is spread among several vendors. They must often determine the right service hotline to call, then under most OEM contracts, do some initial troubleshooting over the phone before an engineer will be dispatched. Our studies have shown that there can be well over 25 process steps involved on the laboratory side from problem reporting to final resolution. There’s the initial triage time, the need to escort OEM engineers while onsite, explaining or reproducing the problem, and verifying the repair. These hours represent lost laboratory productivity as well as additional administrative cost.

If you’re responsible for organizing service only for the

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Five things to consider when designing your instrument service program

1. **Consider the solution globally.** Form a team of lab, procurement, and others to evaluate solutions efficiencies across functional departments.

2. **Assess your service requirements holistically.** Designing your service program based on your asset list alone may not take critical factors such as position in process, instrument criticality, or sensitivity to downtime into account.

3. **Know your service provider.** Understand their business model and what they expect from you; get the specifics on their infrastructure and ask others about their service reputation.

4. **Verify your provider has the right expertise.** Ask for training records and certifications for anyone who works on your instruments upfront — it’s not only a good idea, in some regulated environments it may be required.

5. **Don’t choose a service strategy based on contract price alone.** Consider the “soft costs” associated with instrument downtime and lost analyst productivity. The lowest priced contract may actually be more costly in the long run.
lab that we described in the scenario at the beginning of this article, then the OEM model and ISO model are likely to be high on your consideration list. On the other hand, if you’re tasked with managing service for larger labs or are participating in a service program design team for your entire site or organization, the Service Consolidator or In-house models deserve closer consideration. There’s also a fifth model that’s emerging in response to customers’ evolving needs.

INTEGRATED SERVICE DELIVERY (ISD) MODEL
A recent trend in the analytical instrument service industry has been for equipment manufacturers to develop service programs that blend aspects of each of the traditional service models according to the requirements of each organization.

These new programs are designed to overcome the administrative burden of managing multiple OEM contracts, while allowing procurement personnel and lab managers to consolidate multiple service contracts into one. The ISD provider becomes the single point of contact for all instrument service across the laboratory to streamline service processes and make the service program more convenient for lab managers and analysts. The ISD can leverage the advantage of the In-house model by placing engineers and a parts cache on-site to manage scheduled services, as well as to triage instrument service events. This frees lab personnel from the time-consuming involvement in service events while reducing the biggest delay-causing steps in most instrument service events — engineer travel and parts shipping (Figure 1). Because the engineers work for the vendor, the Integrated Service model can provide the benefit of onsite resources without the weighted costs and infrastructure limitations inherent with the In-house Metrology service model. When compared to traditional instrument service models, the ISD model reduces the number of process steps associated with service events and shifts responsibility from analysts to the vendor’s on-site resources. Not only does this make the service program more convenient, it also helps lab managers protect analyst productivity by keeping them focused on lab goals rather than participating in instrument service events.

An additional advantage to blended service models is the asset management and reporting functions typically available under these programs. Most of the traditional service models provide very little information to lab managers about service delivery. It’s often difficult for managers to track service histories, service costs, or return on services investment. This type of asset management and service reporting is a key feature of today’s multi-vendor service provider programs.

CONCLUSION
Choosing the right instrument service program can be a daunting task as you consider all of the service factors that drive your service-level requirements. Lab managers must consider all components of the instrument service value equation. When considering any of the traditional service models reviewed here or even investigating a blended model, it’s important to remember that anything that impacts service quality, reliability, or responsiveness can have a direct impact on laboratory efficiency and analyst productivity. And, while the price of your service program will always be a consideration, consider the costs and risks of your choices to your company’s business goals.