Laboratory information system vendors on where their focus is

November 2018—Six of the 30 companies that have LISs listed in the laboratory information systems product guide tell us what you, our readers, want from your LIS and what they want you to know about them.

What is your company hearing from its customers, in terms of laboratory wants and needs?

Curt Johnson, chief operating officer, Orchard Software: The biggest request we get from clients and prospective clients revolves around integration, which takes many forms depending on the type of laboratory and its needs. For example, it could be hospitals or large integrated delivery networks trying to solve the integration problem of point-of-care testing. It could be toxicology labs trying to deliver sophisticated reports to their clients and integrate them into their client systems. It could be other large health care conglomerates or independent reference labs trying to integrate multiple disparate EMRs or EHRs. This connectivity is the primary goal of our clients. In response, we try to enhance their ability to meet their needs and their clients' needs.

Rick Callahan, vice president of sales and marketing, NovoPath: Many of the labs that are considering purchasing an LIS are looking for diversity in specialization of the LIS. By this I mean they want their LIS to be adaptable to a wide range of applications and instrumentation that support the lab's existing test menu as well as provide the capability to support an expanded test menu for future growth and stability.

With the transition taking place in our marketplace and the expansion of specialty testing, the LIS' capability to adapt to a variety of specialties has become an increasingly valuable asset to our clients.

Gilbert Hakim, chief executive officer, SCC Soft Computer: The message from our customers is that they do not want to have third-party modules within their labs. They want one vendor to cover the lab end-to-end. They want a single database, single patient record, across all modules—CP, AP, blood services, genetics, outreach; integration to the EMR; and no third-party middleware, which adds to the time of releasing results. Users also want to save the cost of middleware and its maintenance, which is increasing dramatically.

Customers also want us to provide a software-as-a-service model of application, including cloud-based services on all modules. This reduces their in-house maintenance requirements because the client doesn't have to worry about hardware maintenance backups or disaster recovery since it is covered through cloud services. Our customers want relief from all that extra work because they don't have the staff to do it. Some have even approached us to take over or help them with LIS in-house staff; they want us to augment their staff in that regard, and we have started doing that. When we provide wet lab workflow automation through SCC's workflow engine and directly connect to the instrumentation and robotics, we improve productivity and turnaround time in the lab.

Lori Cross, senior director, solution executive, Cerner: Customers want to provide value through their LIS. They want to make a difference in patient outcomes, partly by helping caregivers get the information they need from their EHRs. That requires integration with EHRs in an integrated and interfaced setting. Examples of potential integrated workflows, Cerner-supported, include an ability to compare a patient's susceptibility testing results in microbiology to the patient's medication profile, and to notify the physician if the patient has been or is being prescribed a drug to which the bug is resistant. Or an ability to notify a radiologist that a patient's kidney function tests are subpar and the radiology tech should change to an alternative contrast media.

Our labs tell us they no longer want to work in silos. Their old LISs were silos in themselves. That is all changing. Labs want immediate and relevant access to the patient's care record so pathologists have the information they need.

Other devices and systems being installed in laboratories are also evolving. As they evolve, sometimes the need to provide information to the LIS and EHR is forgotten. An organization could pay $2 million for a huge microbiology automation system, for example, and find that its LIS can't talk to it. Customers want device validation; the last

thing a hospital wants in this era of decreased reimbursement and skyrocketing costs is a huge paperweight sitting on their loading dock because they can't integrate that system with their LIS. Cerner offers a device validation program for manufacturers that can work through the integration processes and workflows before a device or system even hits the market.

Joe Nollar, associate vice president, product development, Xifin: The LIS should be viewed as a critical strategic component to the lab's overall revenue growth strategy. Customers want flexibility to grow their business without being constrained by technology. Labs need to be able to create new revenue models, whether through easily expanding their existing test menu, launching new testing modalities or specialized assays, performing clinical trials, outreach, or through technical and professional split collaborations with customers.

Our largest growth area in the past year has been in next-generation sequencing. Many labs have been involved in developing next-generation sequencing assays for research and want to take them commercial and/or supply the test for clinical trials. They need a system that can adapt to the commercial market or for clinical trials. They don't want to have to buy another LIS/LIMS or software package just to manage their clinical trials cases. They want flexible, configurable tool sets that can adapt to any type of testing, and they want user-configurable tools to handle their specialized testing, such as next-generation sequencing, and clinical trials testing.

Michelle Del Guercio, vice president, marketing, Sunquest Information Systems: At our annual user group meeting last August, customers talked about pain points impacting their organization and what is most important to them. They focused on lab expertise, interoperability across systems, and their need to expand into areas such as precision medicine, molecular, and outreach.

Customers know interoperability is a necessity. Even if a laboratory has an enterprise system, it still has to talk to other systems. When someone says, "We are going with the Epic or Cerner EHR because they've got everything," we know they still need to connect multiple laboratories, various instruments, and their physician customer base that might not be part of the hospital affiliation. And with the advancements and complexities of lab workflow, such as with the move toward digital pathology or molecular testing, our customers value the depth and breadth of our solutions and our staff expertise to help implement and support these initiatives. Our customers show us that there will always be a new need for interoperability, an expanded need to support mergers and acquisitions, and an imperative for best test sharing and optimization of information.

What are one or two important things readers should know about your laboratory information system?

Johnson (Orchard): Orchard's LIS is designed by laboratorians for laboratorians. Because we concentrate only on the laboratory, we take into consideration the detailed workflows of varying types of laboratories. Our systems are well designed for toxicology, clinical and anatomic pathology, microbiology, and all the workflows that go with the different specialties. Our rules engine and easy-to-use workflow allow laboratorians to be more efficient.

We excel at integrating our LIS with other health care information systems and are highly recommended by the majority of EMR/EHR vendors.

Callahan (NovoPath): NovoPath excels in several areas, but the ones that stand out are service/support and flexibility. Robust functionality at reasonable prices is an expectation of our existing clients, and we don't let them down. However, the gold standards we've set for service/support and flexibility go hand in hand. When a client calls for support, that client and that issue become our primary focus until we have resolved the problem.

Regarding flexibility, you've heard the adage "No two labs are the same." Workflow, implementation timelines, training requirements, financial management, and required features are never the same from one lab to the other. Our employees remain flexible to each lab's unique needs and challenges.

Hakim (SCC): We have more than 2,000 employees and have developed all our modules internally for clinical pathology and anatomic pathology, genetics, and blood services. There is no middleware. We provide end-to-end

automation. And we are integrated—not simply interfaced—with the Epic and Cerner EHR through a Web services package. This means we can pull information out of their systems through the development toolkit they provide and move clinical history into our application.

All of our products are developed with a workflow engine that allows creation of multiple, fully integrated modules. Clients can define their own custom screens, workflows, fields for the database, configuration, and rule engine setup. With this tool they don't need an IT department working on this. This reduces the cost of customization and upgrade, as these changes, accomplished through configuration, will not affect the SCC software. In other words, all of a client's modifications will still be intact when we send them a new version of the system; there is no need to reapply it. We are the only vendor in the LIS market that provides this workflow engine, which cost us over $200 million to develop over the past 15 years. It reduces costs of implementation dramatically, as well as the cost of adding new features to the application.

Cross (Cerner): Support for multi-facility organizations and the ability to grow, extend, and interoperate have been core to Cerner's LIS since its inception in 1979.

Cerner's LIS is No. 1 in terms of market share, according to third-party data sources (HIMSS Analytics), and Cerner continues to make significant investments in LIS features, capabilities, and workflows. Examples of recently released capabilities are foreign accessioning with instrument-ready barcode labels, integrated workflows (single system) for genomic and molecular-based testing (not building systems by acquisition), blood management workflows, and expert rules packaged as standard content. We have the advantage of being strong in that standalone space and in that integrated space.

Nollar (Xifin): Our philosophy is to build tool sets where all possible laboratory testing can be configured and performed, whether clinical, AP, molecular, or genomics. Our tool sets allow labs to have control over their test menus, link that test to defined workflows or build their own workflow process around the type of testing performed, design or configure screens that capture the data required for each test, and configure the final report. We provide labs with the option, within a single system, to combine a lot of different lab testing specialties in a single cloud-based platform. Having that flexibility gives laboratories the power to create new revenue streams, grow quickly, and adapt to the markets they wish to serve.

Del Guercio (Sunquest): We are more than just a standard LIS vendor or solution and have broken the mold on what a traditional LIS vendor provides. We have created a platform of solutions that extend outside of the LIS to meet the customer where they are, combining the business of the lab with the internal complex workflow of the multidisciplinary lab. From end to end—or from test order and results reporting to multi-lab networking and precision medicine—our technology is designed to support the complexities of today's labs beyond the limits of a mainstream or conventional LIS.

For example, we have had our core LIS since 1979, but we have since built a suite of solutions that support physician outreach, multi-lab networking, as well as the interoperability between the LIS and an EHR. When you take it further into the laboratory, there is precision medicine and molecular genetics, for which the core LIS from any vendor was not historically intended. We've surrounded our LIS with these solutions that help support the business of the laboratory. Our solutions allow hospital organizations to implement what they need to support the systems they have in place. In a nutshell, our solutions have expanded to marry the external business of a lab with the depth and breadth of that laboratory, and they enable lab leaders to do more and know more at a pivotal time in health care.