Newsbytes

Pointers to ponder when planning a lab automation project

January 2021—It's a maxim for any laboratory automation project: Don't automate until you analyze—the efficiency of current processes, that is. And ARUP Laboratories' chief operating officer, Jonathan Genzen, MD, PhD, has taken it to heart as the laboratory gears up for large-scale automation projects this year.

"If you workflow map and you figure out what your current steps are, it gives you that opportunity to reflect on whether a step is truly important or whether it could be eliminated or at least modified in a way that makes the overall process more efficient with higher quality," he says. "You want to get your lab Lean before automating so you have a realistic expectation of what the needs and demands are."

Workflow mapping uncovers challenges and surprises that are often part and parcel of large-scale total lab automation projects and is just one example of how to analyze a lab's needs and goals before embarking on total lab automation, says Dr. Genzen, who has offered tips on undertaking TLA projects at American Association for Clinical Chemistry and other health care industry meetings. Dr. Genzen discussed lessons learned from such projects in a conversation with CAP TODAY.

Taking stock of a lab's needs may mean determining whether specimens require automated refrigerated or subsequent frozen storage, and for what durations, and what processing is required before or after loading specimens on the automated track, he says. It also entails assessing a variety of other factors, such as specimen volumes and what times of day the lab is most likely to experience specimen-processing bottlenecks.

Dr. Genzen

"If you don't have the volumes to keep a test operational 24/7, automating [it] might not make sense," Dr. Genzen says. Laboratories should also consider the benefits to staffing and test turnaround times when determining whether and to what degree to automate. "You don't want somebody sitting at a bench all day decapping specimen tubes," he notes. However, efficiency goals should be analyzed from many angles. For example, says Dr. Genzen, "not just an improvement in turnaround time but also a decrease in the variability of turnaround time is key. I think it's important to define metrics related to time and personnel, such as the number of tests that could be completed by a set of operators running the track."

Yet even with careful assessment of a lab's needs, TLA projects can pose unexpected challenges. "There are always some surprises that have to be overcome," Dr. Genzen says, citing as an example the need to provide compressed air to move the valves in an automated track. While some facilities may have centralized compressed air, others require individual air compressors, which can be loud and disruptive and, therefore, need to be distanced from workspaces. "These are things you don't think about at the beginning of the process, but when you really start to get down to what your room can handle and what the space can support, they become very important," he says.

Other physical space issues that should be considered during the early phase of planning include to what degree a floor is level, how much weight the floor can support, how much heating and ventilation will be required to keep the room temperature stable, and even the height of the ceiling and location of support beams. The layout of a track may vary tremendously if you have support beams or other obstacles the track needs to be routed around,

he says, noting that all of these issues can lead to significant additional costs.

A sticky issue in TLA project planning for many labs is stat testing, according to Dr. Genzen. “A laboratory can sometimes manually do one thing very quickly, but when you try to do that task every day, or many times a day whenever stat specimens arrive, it is challenging to get that same quick reliability on turnaround time,” he says.

Some TLA systems have bypass lanes for priority processing of stat specimens built into the track. However, if that capability is not available, deciding whether or not to manually process stat tests can be a tradeoff between speed, traceability, and reliability, Dr. Genzen says. Some labs have even stopped categorizing certain ER tests as stat after implementing TLA because the speed of routine testing on the automated system can be as fast as manual stat testing while providing more reliable, predictable, and traceable workflows, he notes.

For immunoassays ordered as stat tests, turnaround times may be impacted by the configuration of the instrumentation on the track, Dr. Genzen says. “If the immunoassay that runs troponin is very close to the beginning of the track, you may be able to get faster turnaround time for troponin. If your immunoanalyzers are at the end of the track, you may have specimens that, because of shared testing, are waiting on chemistry analytes or waiting on non-immunoassays.”

Laboratories should also consider which instrumentation they want to retain, and even the length of time left in existing equipment contracts, when choosing an automation track, Dr. Genzen says. Laboratory teams may have strong instrument preferences, but not all instruments may be connectable to the same track. This can put labs in the position of having to decide how much they like one instrument or vendor versus another, he says. The expiration of equipment contracts can be an opportunity to move to one vendor to improve equipment compatibility on a TLA track and, therefore, a lab’s efficiency. However, vendor contracts with distant end dates could pose problems for consolidating equipment on a track in the short term, he says.

If a lab can physically connect equipment from different vendors onto its automation track, it should consider whether instruments from these companies have different tube type requirements, technical specifications, and methods of specimen management that can pose challenges to an automated workflow, Dr. Genzen says. He once witnessed a laboratory team’s surprise during a lab system go-live event when a critical barcode scanner on an automation track couldn’t read the last digit of the specimen accession number from the lab information system. “The lab ended up having to modify its LIS accession number format to account for the limitation of this single, critical barcode scanner in order to go live with automation,” he says.

“Just because you can physically connect an instrument doesn’t mean there might not be IT challenges with sharing information or such factors as instrument status, uptime, and QC status that can affect the lab automation software,” Dr. Genzen emphasizes. Therefore, you want to consider all of these potential issues up front.

Another potential pain point for large-scale automation projects can be the price tag, but Dr. Genzen notes that by carefully comparing the costs of large-scale automation to less automated solutions, labs can often justify the expenditure. ARUP Laboratories, for example, builds business value models that estimate return on investment in years to avoid outlays that cannot be justified. These models incorporate anticipated capital expenditure, service and reagent costs, depreciation, expected growth rates, and testing revenue, he says, thereby painting a picture of a project’s viability.

From a big-picture perspective, Dr. Genzen once told an AACC meeting audience, the key to undertaking an automation project is “be open to new ideas; be practical; be skeptical; and play well together in the sandbox.”

Next month: Dr. Genzen offers tips on developing requests for proposal for laboratory automation projects.

—*Renee Caruthers*

CompuGroup Medical acquires Schuyler House and eMDs

CompuGroup Medical announced that it has purchased Schuyler House and eMDs as part of a plan to expand its

product portfolio in the U.S. health care information technology marketplace.

Schuyler House markets the SchuyLab laboratory information system, with most of its business focused on physician office and reference laboratories. “By acquiring SchuyLab, CompuGroup Medical gains more options and expertise to better serve laboratories performing clinical, toxicology, pain management, microbiology, molecular testing, and more,” according to a press release from CompuGroup.

In a separate announcement, CompuGroup reported that it has purchased eMDs, a provider of ambulatory information systems and revenue cycle management services. “We are firmly convinced that both CGM and eMDs customers will benefit from this transaction through complementary product strengths,” said Frank Gotthardt, founder and CEO of CompuGroup’s Koblenz, Germany-based parent company, CompuGroup Medical SE and Co. KGaA, in a press release.

CompuGroup Medical’s U.S. business arm specializes in laboratory information systems for physician-owned labs and reference laboratories.

CompuGroup Medical, 800-359-0911

Proscia pathology platform deployed at NASA lab for collaborative cancer program

The National Cancer Institute Consortium for Molecular Characterization of Screen-Detected Lesions and NASA Jet Propulsion Laboratory, coordinated by the Baylor College of Medicine, have deployed Proscia’s Concentriq digital and computational pathology platform in their efforts to address cancer overdiagnosis.

The NASA laboratory is digitizing a repository of pathology data for researchers in the NCI consortium and will use Proscia’s Concentriq image- and data-management platform to host and manage the repository. Concentriq will centralize the activities of the consortium’s seven sites to support collaboration and data sharing, according to a press release from Proscia.

The NCI consortium performs comprehensive molecular and cellular characterizations of tumors and tumor microenvironments to help identify aggressive cancers and find minimally invasive methods of treatment. The research data will also be used to combat overdiagnosis that results in unnecessary treatment of asymptomatic cancers, Proscia reported.

Proscia, 877-255-1341

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