

Laboratory automation possibilities give lift to labs

Kristen Eberhard

[Access interactive guide](#)

March 2014—Tracks, modules, rules, consolidations, connections. Marketers of lab automation systems and workcells are busy turning out and fine-tuning what labs of all sizes need in the face of staff shortages, belt-tightening, growing workloads, and the need to implement a new set of best practices as payment shifts from volume-based to value-based. “Automation systems that provide answers to these challenges will help fulfill the original promise of laboratory automation and become the new standards of automation innovation,” says Jeremy Kiger, marketing manager for lab automation and IT, Roche Diagnostics.

“Solutions that help customers face these business and clinical challenges will continue to be in demand,” says Rita White, associate director for business management, automation, and informatics, Siemens Healthcare Diagnostics.

At Beckman Coulter, where the Power Express is due out this year, “Customer input drove us to develop our new automation system to reduce turnaround time, increase consistency, and remove possible bottlenecks in the workflow,” says Jorge Lana, senior manager for automation.

Their systems and many others are profiled on pages 16–36 in CAP TODAY’s annual guide to lab automation and workcells.

Roche is now selling what it unveiled last July at the AACC annual meeting: the Cobas 8100 automated workflow series, which was designed to process samples, hands free, using direct routes for short and predictable turnaround times. To achieve this, the Cobas 8100 uses multilevel bidirectional transport, with a two-lane upper level for full-sample carriers and a two-lane lower level for empty ones. The system can be configured linearly or in a station format, and workflows can consist of primary samples or aliquoting or a mixture of both. This high-volume system can achieve sample throughputs of 1,100 tubes per hour. Features like add-on storage buffers provide midterm storage for up to 1,000 samples and can be used for add-ons, reruns, repeats, reflex testing, and archiving. “The Cobas 8100 automated workflow series delivers what we call ‘automation without compromise,’” Kiger says.

For labs in which track-based automation may not be the right fit, Siemens’ VersaCell X3 Solution became available last July. It has a small footprint (60 in. h × 31 in. d × 44 in. w) and can connect up to three analyzers (chemistry, immunoassay, or integrated systems) through a single robotic sample interface.

Also last year, Siemens introduced two modules to the Aptio Automation system. The preanalytical Bulk Input Module permits extended walkaway time, allows bulk sample loading onto the system without first having to place tubes in racks, and accommodates multiple tube sizes simultaneously. The postanalytical Aliquotter Module allows the production of multiple secondary tubes from a primary sample to be used on off-line analyzers or as send-outs, improves operator safety by avoiding manual splitting of the sample, saves operator time and increases workflow productivity by eliminating manual steps, and avoids sample carryover by using disposable tips. “We plan to introduce the Tube Inspection Module,” White says, a preanalytical tool that will compare the color of tube caps with information related to specimen type or tube destination embedded in the bar-code label.

Beckman Coulter will launch its Power Express in the United States this year, “leveraging more than 15 years’ expertise with Power Processor,” Lana says. It has a modular layout, he adds, that suits different workflows and makes the most of the available space. Power Express consolidates clinical chemistry, immunoassay, hematology, and coagulation, with a throughput of 1,200 tubes per hour.

Within the past year, for its AutoMate 2500 family, Beckman Coulter added support for microtiter plates and extra personality racks. For that family and other systems—Power Processor, AutoMate 600/800, LH 1500, and PowerLink—Beckman updated its software and improved its hardware.

Cerner, too, updated and improved its systems. After acquiring Labotix Automation in 2013, Cerner “spent time connecting paths between the LIS, analyzer, and track systems, hoping to create a tighter integration for both Cerner and non-Cerner LIS customers,” Sam Bhatia, MBBS, MBA, PA(ASCP), physician executive of laboratory operations, says. The company will focus in the next year on updating a device driver list, certifying more device manufacturers as partners and collaborating with them, and integrating LIS/lab information management systems.

Abbott launched last year its Accelerator a3600 track system, and it is now developing an interface designed to link its high-volume hematology analyzer (Cell-Dyn Sapphire) and blood film preparation and staining instrument (Cell-Dyn SMS) to the Accelerator a3600. The a3600 can process multiple tube sizes and types simultaneously, at up to 3,600 tubes per hour, and labs can install up to 99 modules on a single system. “The interface will be an important option for labs that wish to consolidate their hematology testing with their immunoassay and clinical chemistry testing onto one automation system,” says David Overcash, Abbott senior product manager of diagnostics.

Sysmex introduced last month an enhanced software solution, the WAM v5.0 software rules engine. Among the upgrades are extended delta checks and the ability to determine time frame and match on one or more variables to support clinical decisions, says Nilam Patel, MT

(ASCP)SH, Sysmex senior product manager, automation solutions. A new program checks for appropriate rule construction, with the option to print the output of rule testing for quality assurance records. The Rule Checker alerts the user to rule conflicts. A new Alert Bar is accessible from all screens and color coded to give the user a quick overview of the system health for interface connections and system status. It also displays the system activity for pending, rerun, and results that need to be validated to ensure the user has information to maintain turnaround time for critical results. The Smear Status report tracks the creation of slides from the SP device and determines the status of the smear generation by “pending,” “error,” “done,” or “completed” status. For security purposes, there is complex password management as well as lockout features and security access reports to monitor user activity. The WAM 5.0 provides compatibility with Sysmex’s X and XN-Series analyzers.

Sarstedt will soon introduce a Pick and Place module, which will make it possible for Sarstedt automation systems to connect to other tracks. “Depending on the configuration, the unit can still operate in standalone mode should the track stop working,” says Peter Rumswinkel, VP/general manager.

Aim Labs’ focus in the past year has been to consolidate its PathFinder 350A and PathFinder 900 Plus. “What we see,” business manager Ralph Donaldson says, “is there is no such thing as a ‘standard’ installation, so what often drives our product development is that every installation is different and unique. We are often called on to quickly respond with custom design changes to meet a new customer’s requirement.”

In CAP TODAY’s guide to lab automation systems and workcells are the aforementioned systems and others from Inpeco, m-u-t America, Ortho Clinical Diagnostics, and Yaskawa. Readers interested in a particular product should confirm it has the stated features and capabilities.□

[hr]

Kristen Eberhard is CAP TODAY associate editor.