advance FOR ADMINISTRATORS OF THE LABORATORY

BUDGETING FOR NEW INSTRUMENTATION

Learning new math and balancing the laboratory's bottom line

By Alistair Gammie, PhD

When I was a laboratory manager, one of the most challeging parts of the job was budgeting. After all, my background was clinical and my expertise was laboratory diagnostics — not managing people, supplies, repairs and making capital investment decisions about new analyzers and equipment. Today's lab manager must also contend with new regulations, new clinical protocols and dizzying advancements in the speed and breadth of available assays, along with ever-evolving quality metrics.

With sample volumes going up, and reimbursements, budget allocations and available staffing going down, laboratory directors find themselves having to learn a "new math" and manage all of these processes and expenses simultaneously. There is intense pressure to be more efficient and deliver faster results with more accuracy than ever before.

Over the last decade, the growing sophistication of automated analyzers and track-based automation connecting multiple analyzers across all disciplines have offered laboratories an opportunity to implement high tech solutions to achieve all these goals. But the journey from low-tech, high-touch manual processes to an efficient, nearly hands-free system; the required investment in process and workflow redesign; and the cost of the automation system itself can

be overwhelming.

So where do you start? How do you learn this new math of budgetingfor total lab automation, and what are the short and long-term implications for the laboratory's bottom line?

Know Where You Stand

Begin with a situation analysis. There are several tools that will guide you through this process. A good place to start is with a 5C analysis (compa-

ny, customer, competitor, collaborator and climate), which will help you understand your lab's strengths and weaknesses within your market. This should help you define your current process and how it compares to your peers. Every laboratory has good and bad areas, and it is fundamental that you maintain or improve what is good and use automation to eliminate the bad.

Take a Hard Look

Do you know what every member of your staff does every day to support your business? The easy argument for automation is the need to reduce staff or the lack of available qualified staff. This may well be true, but if you do not know who does what, who is over or under performing and where the inefficiencies are, how do you know? And how do you quantify it?

There is also the need to understand the entire clinical process. Lab managers may be told they need a 30-minute turnaround time (TAT) for chemistry, but have no idea how this translates to the patient. Maybe the need isn't so much the speed automation will deliver for a particular test, but the system's smart middleware that will reduce unnecessary testing automatically based on results, which will translate into faster, more reliable performance with less waste and higher productivity.

Measure Everything

Review the tests being run within your operation. Determine how much you spend on duplicate calibration and controlling of analyzers. This root and branch review of what you spend can shed significant light on your costs. What about the power and water used by your lab, and the waste you generate? Do the potential savings in these areas help justify the capital expense of automation?

Determine the cost of change itself. It is more than just the price tag for new analyzers and modules. It is also the interim costs of training, additional staff to cover for those being trained, development of new protocols and writing new standard operating procedures (SOPs). Determine the timetable and how that impacts your need for supplies — unplanned shortages will cost you productivity, money and, potentially, reputation.

Your 5C analysis should have identified opportunities to improve both efficiency and clinical outcomes. These improvements have a monetary value that should be factored into the equation, understanding that the gains may not occur within the lab itself.

For instance, NHS Tayside in Scotland is now performing pro-calcitonin testing within its automated lab. As a result, Bill Bartlett, PhD, joint clinical director of diagnostics, said they have achieved a significant increase in antibiotic-free days in the intensive care unit. This has far more value to the organization than a pure intra-laboratory saving and should be captured in any cost-benefit analysis (McCann RK, Christie S, Bartlett R, Joss J, Bartlett B. An objective assessment of the utility of pro-calcitonin in an intensive care setting. Annals Clin Biochem 2012:49 Suppl 1;53,W77).

Include All of the Players

A stakeholder analysis is the final component of building your business case for lab automation. Improvements in workflow efficiency, timeliness of results and error free information impacts the performance of every one of your customer stakeholders— and their ability to meet their metrics when it comes to efficiency and patient outcomes. Quantifying this impact in budgeting for automation will build support for your plan—especially if you are competing against these same stakeholders for capital.

Total Cost of Ownership

Whether you are looking at a direct capital purchase, lease purchase, cost per test (CPT) or a cost per reportable (CPR) model, it is important to calculate and build your budget and business case on the total cost of ownership (TCO). Consider negotiating extended contract terms if you are converting to automation with a contract refresh at the midterm.

Remember to factor in the potential for growth that comes with the increased capacity of automation and optimized workflow. This can also impact your total costs, especially if you opt for a CPT/CPR contract.

Once your project is approved, carefully construct your request for proposal (RFP). Ensure it is written in a way that you can assess the hidden costs of calibrators, controls, power, water and waste requirements, etc. Require that vendors disclose the TCO of each component or the system as a whole if purchased from a single vendor. Use these figures in calculating your final ROI. Finally, when you select a vendor, do not do so on price alone. Negotiate for, and demand, the greatest value for your investment. ■

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