Selection and Implementation of New Information Systems

Keith J. Kaplan, MD[a,*], Luigi K.F. Rao, MD, MS[b]

KEYWORDS

• Laboratory information system • Implementation • Selection • Workflow

ABSTRACT

The single most important element to consider when evaluating clinical information systems for a practice is workflow. Workflow can be broadly defined as an orchestrated and repeatable pattern of business activity enabled by the systematic organization of resources into processes that transform materials, provide services, or process information.

OVERVIEW: SELECTION

BACKGROUND AND CONCEPTS

Do I really need a new system? How do I go about that process? Do I want to replace what I have? Is what I have good enough, so that all I need to do is surround it with additional capabilities?

How do you go about finding out which candidates are the correct systems for you? Do you want to go best of breed, or do you want to have a single vendor?

Regardless of your current practice—its members, partners, hospitals, and laboratories that comprise your practice—these questions are almost always the same.

Workflow can be broadly defined as an orchestrated and repeatable pattern of business activity enabled by the systematic organization of resources into processes that transform materials, provide services, or process information.[1]

The single most important element to consider when evaluating clinical information systems for your practice is workflow.[2] You want your anatomic pathology (AP) laboratory information system (LIS) to fit your existing workflows or improve them but not redesign them to meet the requirements of the LIS. Software can be modified to meet your physical and virtual needs much easier than the converse. Many people make the mistake of evaluating the features of the software and all that they can and perhaps initially cannot do as areas for improvement and lose sight of how any of them fit into existing operations and desired workflows. Although many of the particular functions of the software may change or be modified as you customize the features, the particular workflows of your laboratory, perhaps on its third or fourth LIS system, are unlikely to change as often. Workflows within laboratories, ideally, are designed over time with particular goals or deliverables in mind and exist and persist to meet those goals after years of refinements. Although they may not seem ideal to an outsider, they may be completely practical and functional in an established laboratory to meet its specific needs with its patients, providers, technical staff, partner laboratories and/or hospitals, vendors, clients, and customers. An information system without your workflow in mind will not achieve the overall goals of any implementation—increased efficiency, increased productivity, and cost savings with measurable return on investment (ROI).

Practical matters, such as accessioning, gross processing, histology processing, workload assignment, case distribution, additional test ordering, case resulting, and result delivery, may seem like routine, mundane, basic requirements of any AP LIS; however, you may find particular vendors' thoughts on laboratory workflow may not fit yours. They may not appreciate assigning

Dr K.J. Kaplan is the Publisher for www.tissuepathology.com.
[a] PO Box 473431, Charlotte, NC 28247, USA; [b] Department of Pathology, Walter Reed National Military Medical Center, 8901 Rockville Pike, Bethesda, MD 20889, USA
* Corresponding author.
E-mail address: keithjkaplanmd@gmail.com

Surgical Pathology 8 (2015) 239–253
http://dx.doi.org/10.1016/j.path.2015.02.009

certain cases to certain pathologists perhaps at the time of accessioning based on client requirements rather than at case assembly as many laboratories have historically done. Conversely, you may not want cases assigned at accessioning but perhaps the following day when slides are cut and stained, the daily schedule is known, and the volume of cases, blocks, slides, and staffing are up to the minute.

Without getting too far ahead in the overall evaluation process, the most practical way to do this is to process a week's worth of specimens through a mock installation in tandem with your soon-to-be legacy system and see how one compares with the other, focusing not on "how" the system may necessarily perform a certain task but asking "why" does the system behave in this fashion. What rules, logic, recent enhancements/upgrades, or potential opportunities or issues upstream or downstream from that process may be affected for the next user in the process? For example, what may look like a nice shortcut or feature at accessioning may look attractive; if it creates potential for error at grossing, embedding, or with the immunohistochemistry stainer interface, you need to address the pain points early in the process to ensure workflow requirements are met for all users.

With that said, it cannot be assumed that a prospective LIS does something in a manner that is different from how you currently handle a portion of your workflow or that the new LIS, or at least that part of it, is inferior to your current system. Commercially available systems often represent an aggregate of workflow solutions that have been validated by current customers with enhancements provided in the form of upgrades to the current versioning of the application. Thus, much as new information is learned when conducting peer reviews of other laboratories and often new workflows are implemented based on experience elsewhere, the proposed solution in terms of a new LIS may offer some functionality that would be an improvement to your existing workflow but perhaps unable to perform due to current system limitations and workarounds put in place many years ago that have become routine workflow without anyone able to recall, "Why it is we do it this way?" other than the tried and true explanation, "That is the way we have always done it."

Vendors may make claims that their system supports your particular workflow or portion thereof that is of concern while perhaps not having done so before but would be willing to provide that specification as a customization to their existing system. In general, instead of implementing their current solution in your laboratory for a week, as previously discussed, to detail what level of customization to their source code is required to meet an important detail of your workflow, which is impractical, speak with current customers or references provided by the LIS vendor. Ideally you may know of or be provided a list of clients who use the software currently that are similar in scope and volume to your laboratory.

References are an economical source of valuable information, whether their experience has been overall positive or negative with the application. Most speak openly about a company, product, implementation, validation, testing, production, and ongoing service, support, and upgrades. Here you can uncover issues related to the performance of the company, the application, installation, or post go-live issues that another laboratory has experienced. Be prepared with a list of questions that address their experience today with a particular vendor and application. You may not need this list if you have a talkative reference, but it will help organize an important part of your due diligence in this process. Address workflow and any current or previous issues they had or uncovered that may be an issue for your operation. Also address any customizations that were or were not supported to address those concerns. Customization is a complex process that involves both the laboratory and the vendor to complete successfully. Hearing from another laboratory that it was or was not a pleasant experience may go a long way in your decision making. Be sure to address what resources they had internally to work with the vendor and what resource the vendor supplied to the project and balance those with your resources, or lack thereof, if you have the skills, support, and time to work with the vendor on developing.

SELECTION

Armed with a basic concept of how to approach system requirements within your laboratory's environment and workflow considerations and a decision made to explore and potentially select a new AP LIS, consider a request for information or request for proposal (RFI/RFP) from vendors to respond to for potential selection. Many companies, such as the College of American Pathologists and KLAS, regularly provide lists of commercially available LIS systems and ratings, respectively, to begin to research companies and products. Although much of the information is self-reported, both sources of information provide a common starting point for many to begin your own research.