Chapter 10

LIMS Supervisory Functions

Much of the functionality that is expected from a LIMS is not directly related to functions used for sample submission and testing or for test results storage and reporting. These additional functions are more closely related to extracting data from the system about the system — about samples and other lab-related items such as instruments, analysts, and tests. Table 10-1 provides a list of functionality which can be obtained using the LIMS supervisory functions. These supervisory functions can be used by managers to manage their laboratories. Day-to-day laboratory operations can be monitored, charted, and even predicted.

Raw data, component test results, calculated result values, and numerous associated times-of-day and dates are managed by a LIMS. In fact, these data will comprise most of the LIMS database. By having these data in a database, query techniques can be used to assimilate additional information about the data themselves. The LIMS supervisory functions provide this database access, and in doing so provide management tools for those who interact with the system.

The term supervisory is not intended to suggest that these functions are only for use by laboratory supervisors. The supervisory functions may be billed as tools for management, but this means that they are tools for managing. Every lab member must manage her or his job. The supervisory functions can help manage many aspects of a lab’s business. The term supervisory is used to indicate that these functions operate at a level above some of the other LIMS functions. Figure 10-1 presents the level concept, illustrating the LIMS database as the lowest level, some of the more basic LIMS functions at the next level, and then two levels of supervisory functions. A more detailed evaluation of how the functions work together may yield even more levels.

As described in Chapter 3, a component of laboratory information management is data management. The supervisory functions begin where data management stops. Data management includes entering sample data in the database and possibly producing a results report.
Table 10-1. Functionality Provided by LIMS Supervisory Functions

1. scheduling
   - people
   - equipment
   - tests
   - samples

2. archive/restore

3. directories
   - tests
   - samples
   - sample types
   - customers
   - projects
   - instruments

4. reports
   - sample backlog
   - test backlog
   - control
   - cost invoice
   - device
   - exception
   - audit
   - status
   - trend

To a sample submitter, the quality of the result and the turnaround time for the analysis are the two primary concerns. Submitters want accurate answers, within acceptable limits, as quickly as possible. For the analytical laboratory manager to provide these responses, many details of the lab's operation must be managed. For example, large backlogs can be directly related to slow turnaround times.

When trying to decrease turnaround time, backlog management is a good place to begin. A good way to reduce the backlog is by efficient sample and resource scheduling. Before scheduling efficiency can be improved, however, measures must be devised by which levels of performance can be judged. Without such measures, there is no way to assess improvement. The supervisory functions can automatically provide the necessary measures on which to build management systems and improvement projects.

Supervisory Function Descriptions

Figure 10-2 lists some of the supervisory functions offered by the various LIMS packages. Some of these functions are described below.