A COMPREHENSIVE GUIDE TO

Understanding LIMS

LABWARE

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What is a LIMS?

A Laboratory Information Management System (LIMS) is an application built around a centralized database of samples and any meta data, results, workflows, and instruments associated with them. This not only allows a laboratory to remain organized, but also facilitates efficiency, transparency and compliance.

How Does a LIMS Work?

The central reason to implement and use a LIMS is to log, track, record and report on samples and scientific data in a structured, consistent manner. Although LIMS QA/QC testing capabilities have grown exponentially as computers and mobile devices have become everyday parts of life even beyond the laboratory, the core function has stayed the same: documenting and tracking a sample through its entire lifespan, from when it is initially created, introduced into the lab and through to its usage and disposal.

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The precise level of sample tracking and reporting that is possible with a LIMS makes it easier to comply with laboratory best practices (GMP, GLP). Because a LIMS automatically records certain data, laboratories can spend less time manually tracking, logging and reporting, and more time optimizing their processes for higher throughput and accuracy. Better sample maintenance and handling means more reliable experiments and results.

There are four key considerations to keep in mind to understanding how a LIMS works:

1 **Consistent sample management is tricky and time-consuming.** Before the regular implementation of LIMS, individual researchers would devise their own naming schemes and would hand-document their samples as well as their usage; aside from how time-consuming this was, it also opened a lot of room for error. With a LIMS, a barcode can be assigned to each sample, which is scanned during major sample lifespan events like storage and usage, driving accuracy and consistency in how samples are managed.

2 **Interactions with machines can improve documentation and workflows.** Many LIMS can now connect to laboratory equipment. They can import sample details or export sample data, whether for storage or straight into other applications for further processing or analysis. Many LIMS will even read errors from testing or experimental runs and flag them when appropriate, or they move the samples onto other protocols or equipment for further investigation or experimentation.

3   **Automatic reporting and visibility of sample data.** LIMS monitors the sample's entire journey in the laboratory, and so it necessarily has the sorts of information needed for reports, decision making and audits as well as ensuring quality controls. Because LIMS usually stores data centrally, often in the cloud, it's easy for scientists to access up-to-date, real-time information, no matter if they're in a lab, at home, or even on the road.

4   **Data integrity can be maintained.** Without LIMS, there is extensive room for error when it comes to sample data collection, and even the maintenance of a chain of custody. Manual documentation can rapidly become cumbersome and error prone, particularly as the number of samples being tested together grows—and this can happen often, particularly in a testing environment with extensive controls and significant analysis replication.

How Does a LIMS Work?   Learn More

What Do Laboratories Use LIMS For?

Let's look at some of the top ways and goals towards which laboratories implement LIMS and meet their everyday needs:

Sample Management - Being able to document, track, and manage inventory relating to controls and samples helps scientists have what they need, when they need it—and eliminates the time-suck and errors that come with manual processes.

Lot Management and Release - A central LIMS helps monitor not just batch usage but also batch performance, and also allows for the tracked distribution of lots among lab members. As data for previous similar batches is readily available, results can be seen in the wider context of a product rather than the narrow view of a single batch.

Stability Study Management - A good LIMS will allow scientists to set up and manage an inventory of samples to study the impacts of storage at various temperatures and humidities, track that samples are tested when needed and that the correct tests are performed, and help predict future degradation through data trending. These studies often involve multiple batches and are often a complex matrix of testing and last years, making manual controls and processes unreliable and prone to error—particularly for laboratories managing multiple products.

Environmental Monitoring - A LIMS can help with regular testing of a manufacturing environment, including before and after checks for a batch manufacture or the quality of water throughout a distribution system. This ensures reliable traceability for each sample taken back to the people and/or environment that could potentially be impacted by the detection of unwanted bacteria or inappropriate quality.

Reporting Internally - From institutional audits through routine laboratory maintenance, LIMS creates audit trails that accurately document sample storage, consumption, and even sample results and their subsequent data analysis.

Reporting to Clients (CROs) - Being able to document sample data accurately and thoroughly confers the highest level of transparency. Anyone examining the data from a laboratory run to these high standards can place trust in the outcomes, which makes external reporting a positive experience.

Minimize Resource Consumption - Because individual lab members don't need to spend time trying to accurately collect and organize all of the data surrounding their samples, they can spend more time doing the work and analysis. Additionally, use of a LIMS makes it quick and easy to find samples, which saves time and cost trying to hunt down or potentially regenerate necessary samples.

What's the Difference between LIMS and LIS?

A LIMS is often referred to as a Laboratory Informatics Software (LIS), Laboratory Automation Software (LAS), or Laboratory Management Software (LMS), but at times this is a misnomer. LIMS and LIS are actually not equivalent. Although they serve similar functions, they are typically found in different laboratory settings.

A LIMS is found in industrial settings, such as pharmaceutical labs, where they handle batches of samples and follow both FDA guidelines as well as good manufacturing and laboratory practices (GMP, GLP).

A LIS, on the other hand, is found in clinical settings, where they report on individual patient samples and must comply with HIPAA, as well as guidelines from hospital accreditation agencies. Some of the more feature-rich LIMS can actually perform both these roles.

How LIMS Works with ELNs

A LIMS can be used in conjunction with an [electronic lab notebook (ELN)](#), which organizes lab experiments and can be highly personalized for each individual user or test being performed. They can overlap in referring to samples and tracking sample outcomes, but ELNs tend to focus on individual experiments, while a LIMS will center around tracking samples and collecting and reporting data.

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How LIMS Helps
Laboratory Compliance

When examining LIMS software, lab managers should first scrutinize the validation process used, as this is what sets a lab up for compliance. Then, lab managers should make sure that the features driving compliance line up with the laboratory's needs.
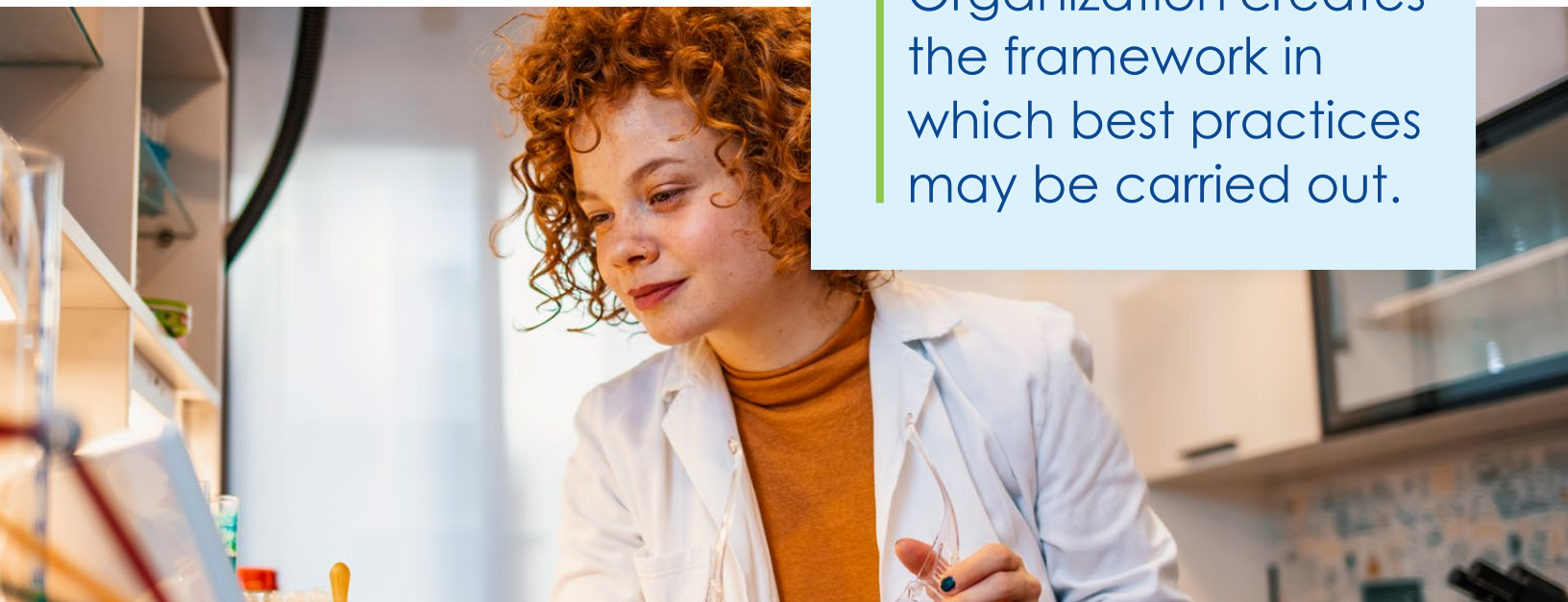
Features of LIMS Software that Drive Compliance

There are three key aspects to how LIMS software drives laboratory compliance with regulations and best practices: organization, visualization, and automation.

Organization

Organization creates the framework in which best practices may be carried out.

It all starts with standardizing the data collected by defining and configuring the required and desired parameters, so that they may be recorded and stored consistently over time.

> Organization creates the framework in which best practices may be carried out.

One internal checkpoint that is part of protocol management involves testing stability study samples, where testing is done for each sample to ensure integrity over time; this data must be collected regularly, with all fields filled for each sample, in order to paint an accurate picture of the samples as well as of their storage.

Organization also includes maintaining accurate records of the chain of custody, from sample receipt through storage as well as any tests or protocols performed with the samples. Before the implementation of LIMS software, laboratories may have inefficient naming schemes, with individuals hand-documenting all aspects of their sample handling, storage, and usage; in turn, this opened the door to everything from human error through tampering. With LIMS, the use of barcodes attached to individual samples drives accuracy, consistency, and accountability.

Visualization

Visualization helps lab managers and any other concerned lab members to report on sample testing and usage, and recommend optimizations where needed.

The fact that all sample data is collected electronically makes it easy to compile into reports. As data becomes available across multiple timepoints, trends may become visible that in turn can be used to improve lab operations or intercept compliance issues before an audit. And rather than enforce a police state, the data is visible and transparent for all users; everyone in the lab has access to the tools they need to drive compliance with best practices.

Visualizations also make it easy to set and monitor key performance indicators (KPIs), and to obtain a birds' eye view of laboratory processes. This can help identify points of strength as well as vulnerabilities, which need not be non-compliance—even inefficiencies count here. There are a wide number of reasons why inefficiencies may occur, ranging from lack of training through overburdened lab members; being able to spot these inefficiencies is the first step toward correcting them and preventing further escalation.

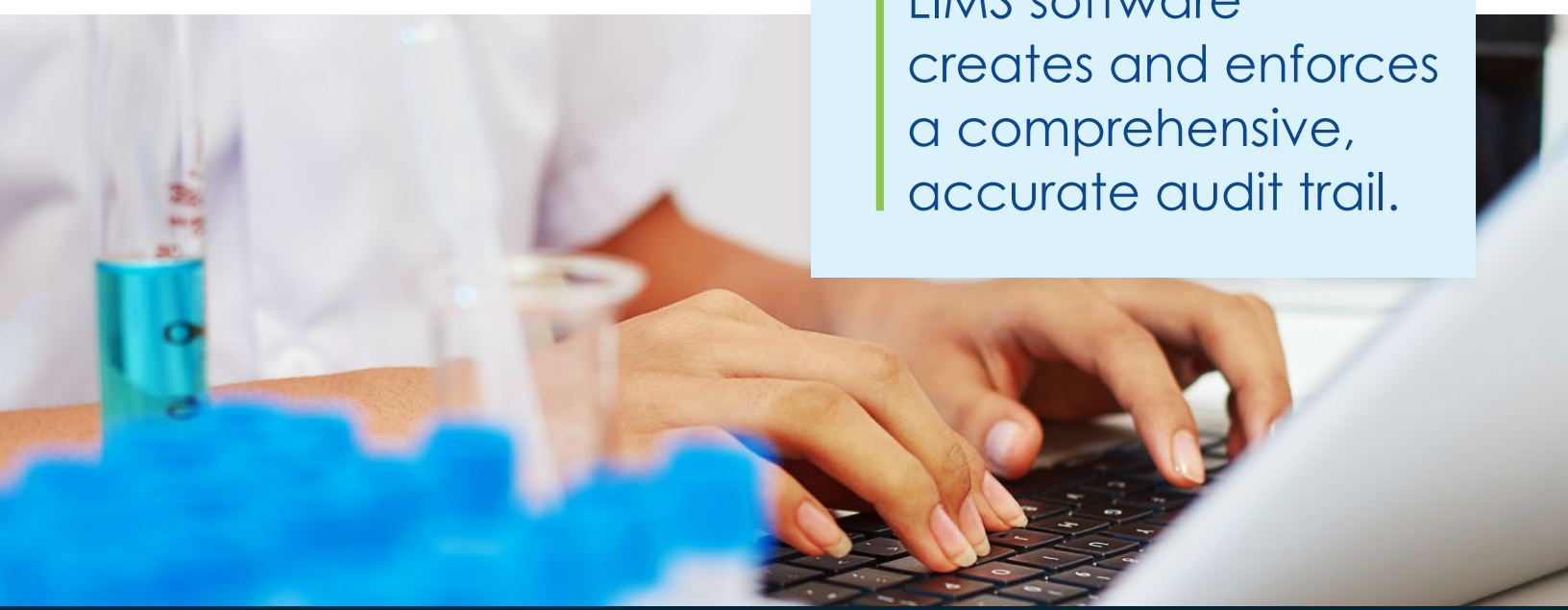Adding power to the organization and visualization of LIMS software is the workflow automation, which removes human error while allowing for further power in documentation. The software itself comes pre-configured to contain best practice workflows that adhere to GMP and GLP requirements, and that are recognized by auditors. These workflows are complete, with all necessary tracking built-in from start to finish.

Automation

Automation allows the LIMS software to capture more details than could be captured manually.

The data captured by the system is more accurate, especially if the LIMS can communicate directly with lab instrumentation and associated software. Transcription errors are completely avoided since documentation is automatically performed within the software platform. A quality LIMS software takes things a step further by flagging any items that fail specifications so that they cannot be released without further review.

Between automation and organization, LIMS software creates and enforces a comprehensive, accurate audit trail. This trail accounts for all samples and their associated results, while also capturing all changes made to samples, tests, and results.

LIMS software creates and enforces a comprehensive, accurate audit trail.

How the Best LIMS Software Can Help Your Lab Compliance

Read More

What is a SaaS LIMS?

Cloud computing and software-as-a-service (SaaS) models make the very best tools in the world accessible for any laboratory analytical testing environment. With cloud-based tools, lab managers:

- Don't need an IT department
- Don't have to worry about system validation
- Don't have to go through large upgrade projects
- Don't have to spend time maintaining these lab automation systems.

Without the burden of worrying about their software, lab managers and their teams can actually focus on their jobs. Put another way, they can focus on science not systems!

Advantages of Using a SaaS LIMS

Rapid deployment
Within as quickly as thirty days, a SaaS LIMS can be fully deployed and live. SaaS LIMS drives the adoption of best practices. In parallel, significant time and cost from implementation and onboarding are saved.

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Pre-configured workflows

Validated, pre-configured workflows that are known to effectively support laboratory operations are part of what is expected in a LIMS. Because the system was designed with an understanding of regulatory requirements across industries, best practices are baked in—including barcodes and unique identifiers to track each sample through the entire testing process.

Fully validated system

An already-validated system can save as much as 30-50 percent of the total system cost, reducing or eliminating required testing, validation, due diligence on requirements and documentation processes needed.

Affordable yet reliable

An established SaaS LIMS functions effectively by reliably storing information on the cloud and operates smoothly, without lags or crashes, by requiring minimal local resources. In fact, it's hosted on web browsers, and so it doesn't need powerful or expensive PCs in order to run.

> Within as quickly as thirty days, a SaaS LIMS can be fully deployed and live.

Secure environment for your data

A SaaS LIMS offers the highest standards of security, both within the application as well as at infrastructure levels. With a traditional LIMS, security is in the hands of the company deploying the LIMS; they incur additional costs as they work to protect their information from threats ranging from viruses through intruders.

Accessible on any browser anywhere

Unlike LIMS hosted in-house, SaaS LIMS offers the advantage of not requiring a firewall or operating on a VPN. All that is needed for entry into a SaaS LIMS is a username and password.

Data integrity compliance

The FDA and MHRA have increasing expectations, regulations and guidance for data integrity, including 21 CFR Part 11 and the latest FDA and MHRA Regulatory Data Integrity guidance.

15 Advantages of a SaaS LIMS Solution

[Read More]

Reasons Why Labs Invest in SaaS LIMS Technology

When you work with a fully-functional cloud-based LIMS, you are gaining the peace of mind knowing that your metadata, workflows, samples, results and instruments are completely organized at all times. Since these important platforms center around the need to track samples, collect and report data, your SaaS LIMS platform provides a flexible and extensible solution to presenting data in a clear and cohesive fashion for a variety of different audiences.

1. Greater Backup and Disaster Recovery Capabilities

Backing up your laboratory data and resource information to the cloud is the first step in creating a robust business continuity and disaster recovery strategy. Your LIMS provider should be able to offer uptime guarantees as well as share information with you regarding the redundancy of backups and where your information is being stored. The security levels for any data centers are also a consideration for your team and you should ensure that your LIMS provider is able to provide the level of access to support personnel and quick response times in the event of an urgent need, too.

2. Navigate Complex Regulatory Environment

It is increasingly difficult to maintain the data integrity and validation required by regulatory authorities, particularly as expectations continue to rise. Without the automation involved with a sophisticated cloud-based LIMS, your laboratory team may struggle to consistently comply with reporting standards unless they are automated and built into your system processes. Any LIMS that you select should be flexible and extensible enough to support evolving requirements, creating a stringent approach to navigating complex regulatory environments.

3. Lessen or Eliminate Audit Failures

Audits can be a painful fact of life for laboratories, and failures can be expensive and time-consuming to resolve. With an active and well-configured LIMS in place, you lessen or eliminate these audit failures by showing that your team is following even the most complex procedures through automation and process control. If you do fail an audit, leveraging your LIMS to bring processes back into alignment can help you overcome these challenges quickly and validate your approach to the resolution.
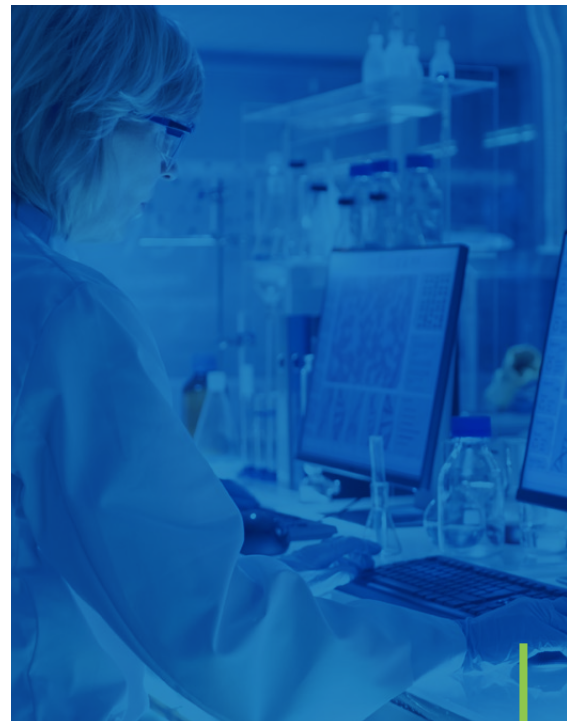
4. Standardize Laboratory Operations

Consistency is one of the hallmarks of solid laboratory operations, and that comes most efficiently from standardized operations. Human errors inherent in manual processes are inefficient, making it difficult to scale, share or report on your results. Creating dependable processes and putting them together into a trusted workflow reduces the stress and overhead required to perform the daily tasks and activities that are required to deliver results.

Compliance requirements often center around ensuring your processes are fully validated within your user environment, making consistency of operations an extremely important aspect of any LIMS. Creating standardized and automated solutions helps reduce manual effort, resulting in lowered costs and more efficient operations. Using a LIMS solution allows you to track data trends across geographic barriers, reducing limitations on analysis options and improving interpretation.

5. Consistently Track KPIs

If you are frustrated with the time required to wait around for results in your reporting, an updated SaaS LIMS offers unique value for your team. Keeping track of the most important KPIs and defining complex metric reports becomes more straightforward when your resource allocation and results are stored in a central location. The simple task of running reports can happen more quickly than you expected, with automated workflows, dashboards and other options that will help ensure that you are keeping track of the most important KPIs to expedite getting results within your laboratory.

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8 Reasons Why Your Laboratory Needs a SaaS LIMS Solution

Read More

How to Tell If Your Lab is Ready for LIMS

Whether you already have a LIMS in place and are considering an upgrade to the cloud or have considered adding this type of platform for some time, here are signs that your laboratory operations could benefit from deploying a SaaS LIMS:

Lack of a Dedicated Internal IT Team

When you don't have access to internal IT professionals that can dig deep into the inner workings of your LIMS, it can be particularly difficult to get the day-to-day support that your teams will need to be successful. With a SaaS LIMS solution, upgrades and enhancements are rolled out via a cloud-based connection so you always have access to the most secure and reliable version of the solution that also contains the latest enhancements.

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Interest in Minimizing Impact on Internal Operations

Tying your resources up with an on-premise LIMS software implementation may not be the most efficient use of laboratory team members' time. With SaaS LIMS software from a trusted technical partner, it's often possible to minimize the impact on your internal operations so you can continue revenue-generation opportunities that will help boost innovation for the future.

Need for a Distributed Footprint

Storing your data in a single location can be a recipe for disaster, particularly for long-term projects and regulated testing that requires a high level of security. With a SaaS LIMS solution, you are able to not only store information securely and remotely but you can also gain access to information from a variety of locations. With on-premise software, users are often restricted to only accessing data or business applications from within a corporate location but SaaS LIMS offers increased options.

Strict Requirements for Regulatory Compliance

When you adopt predefined workflows that are already in full compliance with industry regulations, it can provide a secure base for your operations. With a SaaS setup, your LIMS can be implemented with standardized practices, processes, and controls, easing you quickly into a more compliant solution.

10 Common Characteristics of Labs That Benefit from SaaS LIMS

Learn More

How to Evaluate a LIMS for Your Lab

Labs using manual or older systems might be putting their workflows and compliance costs under undue stress. Consider if your current system is saving you money and time -- or perhaps, actually increasing your expenses. If it is costing you money and time, this presents an opportunity to find an updated system that can streamline processes and track data for increased efficiencies.

Before considering if it's time to update your systems, here's what you need to know to conduct a needs analysis of your current workflow and systems.

Analyze Your Lab's Current Workflow, Systems, and Needs

Discover what current processes are causing a barrier to meeting regulatory standards and where you need to create greater efficiencies that are costing you time and money.
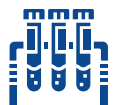
Processing of Samples

The central reason to implement and use a LIMS is to log, track, record, and report on samples and scientific data in a structured, consistent manner ensuring a reliable chain of custody. The processing of samples must produce accurate results every time.

Any samples required to be tested, need to comply with an established schedule ensuring both the required tests are carried out, and correct testing is performed on a consistent basis.

Laboratory Operations

A good laboratory manager should look for ways to improve quality, efficiency, and compliance. Physical space and budget spend are always under scrutiny in a laboratory setting requiring lab operations to run efficiently and effectively. Any manual processes are at risk of human error making it difficult to scale, share, or report on your results with any degree of accuracy and consistency.

Any options that utilize automation gives you control and flexibility to deliver quality outcomes. A major benefit of using a LIMS solution is process automation reducing the risk of human error.

Data Reporting

Data reporting is equally important in understanding how efficient your workflows are and to reveal if anything is undermining the quality of products, systems, and processes. It's important your solution meets the challenging regulatory environment in your industry keeping the integrity of the data.

LIMS software improves data reporting as it makes it easy to report on all activities. A LIMS ensures all data is stored and processed consistently through an automated process, giving you greater transparency and accuracy.

Understand Users and Stakeholders in Implementation

Those who will be involved in the implementation depends on the solution. For instance, if you are implementing a SaaS system, all you need are laboratory personnel because you are merely training and deploying and loading some metadata. You will want a Laboratory Manager and Data Administrator to get the information needed to be loaded to the specifications to your individual company needs.

If you are going down the configuration route, it depends if you are doing an on-site infrastructure or a hosted infrastructure route. If you are going down an onsite infrastructure route you will need subject matter specialists from each area plus an overall business lead, IT leads and specialists on hardware, software, and networking infrastructure which can be very costly.

Stakeholders can include:

Lab Manager

The laboratory manager is responsible for all workflows, work assignments, and workload management plus the monitoring of KPIs and data reporting.

Quality Manager

The Quality Manager will be using the LIMS, whether it's a dedicated QA/QC role or just the responsible person in the lab. They are the person that would normally release the batch and the last person to sign off on the Certificate of Analysis.

Scientists/Analysts

The scientist/analyst wants to know what work needs to be done and what work has been assigned to them. They are going to use the system to document performing the tests and complete the initial assessment of the sample.

Research and Conduct Vendor Demos

When you are starting your research process you can go online and look at software comparison sites such as G2, Capterra, and TechValidate.

It's critical to look for a company with a long history of reliability and experience implementing in your specific environment. You need a company that is stable because you want your data to be safe. You need to consider the scalability of a system because you don't need the same system for a lab of five people versus a lab of 1,000 spread across 3 different countries.

The next step is to schedule various providers to provide you with a demo of their software. Prior to this, highlight the functions that you want to have supported and assess out of the box functionality to meet those functions. If those functions don't meet your expectations, then discuss what you would need to close the gap, which may take a second demo. It's all about cost reduction - don't immediately assume you'll need to customize it to your vision of a system. Customization increases cost, effort and risk.

You need a company that is stable because you want your data to be safe.

Use Criteria to Evaluate LIMS

The next step is to compare each provider against the criteria lab managers should use when evaluating a LIMS solution.

LIMS evaluation criteria to consider:

- **Features:** How well does the solution fit with your workflows, or will you need additional customization?
- **Pricing:** Is the solution offered on-premise or software-as-a-service? Will you be licensing or purchasing a subscription?
- **Support:** How will the vendor work with you through the design, implementation, and post-launch of the LIMS?
- **Implementation Timeline:** How much customization will you need, and what timeline is expected to get the solution up and running?
- **Vendor Experience:** How much experience does the LIMS vendor have within your industry? Do they have any industry certifications to support their expertise?

How to Evaluate a LIMS System for Your Lab

Learn More

Implementing a LIMS Solution

Every strong implementation requires an honest, comprehensive review of a lab's needs and vulnerabilities, followed by a prioritization in addressing them. In many ways, an audit helps simplify this step by flagging the most critical issues present. From there, evaluating a system will depend on selecting and purchasing the system whose out-of-the-box core functionalities best align with the lab's needs. Less customization means a smoother implementation.

Steps to Implementing a LIMS

1 **Data Population:** Once a system has been selected, there are two common ways in which the "master data"—or laboratory data and required fields–can be populated within the system. The more tedious option involves relying on the user to manually populate all of the data in the system. The alternative—used by software-as-a-service (SaaS) platforms—is to have users supply master data to SaaS administrators inside the platform, who then leverage preconfigured templates to easily and rapidly populate required fields.

2 **Training:** Next, every lab member should be trained on using the LIMS. This is generally done through self-training guides, where individuals can go at their own pace, and reference materials that relate directly to their day-to-day function.

3 **Validation:** Validation is a critical step. A SaaS LIMS platform should come fully-validated, and therefore provides administrators with validation packages, the acceptance of which may depend on the laboratory's risk tolerance. Some LIMS solutions also offer extensive customization options. Although customization may seem attractive at first, it means the validation must be completely redone for the final implementation.

4 **Implementation:** Once validation is complete, the implementation is ready to go live. Laboratories can start testing their samples, generating data, and automatically tracking results.

> Every strong implementation requires an honest, comprehensive review of a lab's needs and vulnerabilities, followed by a prioritization in addressing them.

Implementing Lab Management Software When You've Failed an Audit

Learn More

How Much Does a LIMS Cost?

Understanding the total cost of your laboratory information management system can be daunting. We provide factors to consider when choosing a LIMS that meets the scientific objectives of your laboratory environment and is also cost-effective.

The measures of success when analyzing total information management system cost are:

- ✅ **Degree of configurability:** How does configurability affect total cost?

- ✅ **Speed of implementation:** How quickly can implementation occur?

- ✅ **Capital and operational expenditures:** What's the initial expense and what are continued expenses?

- ✅ **Internal and external processes:** How can the lab meet continued internal and external demands while staying within budget?

- ✅ **Compliance:** How can audit failures, warning letters and penalties be avoided?

Factors in the Total Cost of LIMS

Lab Infrastructure

The key to solid lab infrastructure is access. Labs can't run efficiently if there are not enough access points for all employees.

Laboratory-deployed equipment must also be considered. The location of barcode readers and printers must be conveniently placed. If the lab is working with heavy-duty solvents, solvent-resistant hardware may need to be purchased.

In order to avoid compliance problems and human error, documentation should be completed at the time that the lab work is being executed, with little to no lag time in between tasks. PaaS and SaaS LIMS allow for multiple access points, which helps streamline documentation. An on-premise LIMS may work well with a single or centralized laboratory, offering your team ultimate control on its setup.

IT Infrastructure

An on-premise arrangement for IT infrastructure gives complete control of the process to the organization. This means that the organization is responsible for the major capital expense of building and configuring servers. In addition to the initial expenses, you will need a dedicated IT team with specific expertise to maintain upgrades, maintenance, and managing system issues.

If you don't have an internal IT team, PaaS and SaaS often include IT management in the subscription, reducing the financial risk of managing your infrastructure needs and allowing your team to spend more focus on the lab's business. PaaS infrastructure management is scalable, meaning your lab can reduce or increase server capacity based on the lab's current needs. SaaS systems will scale on usage without the need for active management of the IT infrastructure. For both PaaS and SaaS, backups and recoveries have already been built into the system.

An on-premise arrangement for IT infrastructure gives complete control of the process to the organization.

Licensing Models

The decision regarding a perpetual or subscription model is based on how long your organization wants to keep the LIMS running and how important known and predictable costs are. A major factor in this determination is a financial one. Perpetual licensing of an on-premise arrangement is a capital expenditure, locking you into one cost for the length of the agreement. Although expensive initially, over a long-term agreement, you may realize cost savings.

In PaaS, the software licensing is achieved through either perpetual arrangement or subscription. Infrastructure licensing is generally subscription-based. Customization is possible, but it is paid on an as-needed basis.

With a SaaS-based laboratory information management system, all licensing is subscription-based as an operational expenditure. A complete subscription-based service can mean lower total costs if your lab wants a less customized solution and is willing to adopt industry best practice.

Implementation Approach

If adopting a customized on-premise LIMS, your team determines requirements and maps all process flows. The system is configured to your unique specifications, followed by implementation. Keep in mind that it may take a longer time to configure individual customizations, validate them, then deploy the system.

PaaS represents a middle ground between on-premise and SaaS. There are more opportunities for customizations without getting overly involved in the complexities of the IT needs, thus allowing a greater focus on the science.

There are very few customizations in a SaaS LIMS, resulting in the lowest cost of all three setup options. Because labs are purchasing SaaS with an out-of-the-box configuration, it offers the fastest route to total implementation and deployment.

With PaaS, upgrades can still be initialized as needed to meet individual needs. With SaaS, upgrades are included in the cost but are not specific to an individual organisation. Unlike on-premise environments, for PaaS and SaaS a dedicated internal IT team is not needed to perform upgrades, which keep operating expenses consistent and predictable.

Data Validation

Organizations that choose a customized on-premise LIMS are responsible for validating applications that fit the purpose of the particular lab environment. This is the downside of pursuing individual customizations.

Initial validation overhead is lower with PaaS because the software vendor has already completed validations pre-purchase. But for any customizations, the validations are established from scratch. This can lengthen the time to the implementation.

SaaS dramatically lowers validation burdens. Rather than validating software to assess fitness for purpose, the user is tasked with looking at processes and learning what the software can support.

With SaaS LIMS, customization is minimal, therefore needing very little-to-no additional validation; your processes are matched to the system, rather than building the system to match your processes. Your laboratory is still responsible for the validation of the system, but you can adopt the validation that your LIMS vendor has conducted as support.

> With SaaS LIMS, customization is minimal, therefore needing very little-to-no additional validation.

Data Migration

On-premise and PaaS LIMS have capabilities for data migration. Even so, companies have spent much time and money in unsuccessful attempts. The data that is actually required is often a fraction of what is actually migrated. Therefore we suggest that the user acquire an in-depth understanding of organizational needs.

Many organizations undergo a cost analysis to determine the most appropriate course of action. Rather than executing a blanket migration, one may wish to progressively wind down the usage of the old data; or store it in a data warehouse.

There is generally no data migration for SaaS LIMS. However a user may migrate stability studies or previous data from legacy systems if moving from one software package to another.

Training

Training packages may involve facilitation of classroom training sessions, on-demand training, or web-based tutoring. Effective training often requires extensive time and resources. However, if training is short-changed, a poorly trained staff can wreak havoc on a new, expensive LIMS.

A specific budget for training should be included in the total laboratory information management system cost. This will lead to positive outcomes in the laboratory environment and processes.

Support

The use of internal administrators is most appropriate when there are a large number of local users in one location. Internal support requires a dedicated team member or team to handle issues quickly and efficiently, but allows your team to control issues and escalate any problems as needed.

A lab manager may wish to consider outsourcing the support team if the lab team is relatively small or if the team is employed in multiple physical locations. If the support is handled by your vendor or another third party, it's important that they have expertise in the LIMS-based system. When outsourcing IT support, remember that any outside party will have access to your data, your company's intellectual property. Therefore, it is critical to be able to trust the knowledge and integrity of your outsourced team.

What is the Total Cost of a Laboratory Information Management System?

Learn More

LabWare LIMS -
Self-Hosted v. PaaS v. SaaS

LabWare was initially built for the large testing environments where flexibility, customizability, and power are paramount to successfully selling and deploying into large pharma labs. Deploying Self-hosted or on-premise implementations fully customized to a laboratory's needs is costly, often taking months and significant resources, followed by ongoing maintenance and validation costs to keep the system up to date. As new smaller labs sprouted up in pharma hubs around the world, dozens of new LIMS products came on the market to serve these smaller labs. However, none of these homegrown or LIMS-lite tools equal the power and name recognition of LabWare.

For smaller pharma labs and contract research organization (CRO) labs, the LabWare SaaS product immediately meets 80-90 percent of their needs. Since LabWare SaaS is built based on industry standards and best practices, any process adjustments that the labs will need to make during implementation will be adjusting to industry standard ways of working. For labs who need customized industry-specific LIMS implementations but don't want to take on heavy infrastructure costs, the PaaS option is ideal. Now, we've synthesized all the best practice we've learned from the largest most complex lab environments and have put it to work with LabWare SaaS LIMS and PaaS LIMS. making the world's top LIMS available to all types and sizes of laboratories.

Today, laboratories have three options for deploying LabWare LIMS:

1. Self-Hosted - This is where the laboratory is responsible for installing and maintaining the infrastructure from an on-site centralized location.

2. Platform-as-a-Service - Lab services are conducted from a hybrid of a central lab location and a cloud-based environment. (Remote work friendly)

3. Software-as-a-Service - All services operate via a cloud-based environment and are accessible from any location with Internet access via web browsers. (Remote work friendly)

The Differences Between LabWare LIMS and LabWare SaaS LIMS

Learn More

Which LabWare Option is Right for You?

Determining whether LabWare LIMS or LabWare SaaS LIMS is right for you starts with asking four questions:

1 **When do I need my LIMS to be up and running?** Perhaps you failed an audit and need to address data integrity issues immediately or you are urgently looking to get a LIMS in place to ensure compliance or improve efficiency. If that's the case, LabWare SaaS LIMS with rapid deployment in under 30 days may be right for you. If you are strategically shopping for a new LIMS and are willing to invest the months required to customize your perfect solution, consider LabWare LIMS.

2 **Do I want an on-premise deployment or cloud-hosted deployment?** LabWare LIMS can be deployed on-premise or in the cloud; LabWare SaaS LIMS is a cloud-hosted deployment only accessible via web browser.

> Determining whether LabWare LIMS or LabWare SaaS LIMS is right for you starts with asking four questions.

3 **Do I have a sufficient budget for a custom deployment or should I opt for a cost-optimized deployment?** A custom deployment is longer and more costly while a SaaS deployment is cost optimized, with pre-built solutions that are more affordable, fully validated, and ready for deployment within 30 days.

4 **Are our incumbent workflows or reporting processes set in stone or are we flexible?** LabWare LIMS custom deployment is customizable to your specific needs. A LabWare SaaS LIMS deployment comes with prebuilt workflows and reports that, although inspired by best practices from Fortune 500 labs, may require your testing environment to adjust.

What is the Total Cost of a Laboratory Information Management System?

Learn More

About LabWare

Founded by CEO Vance Kershner in 1987, LabWare has offices in 25 countries, employees in more than 50 countries, and customers in 125 countries.

For more than 30 years, LabWare has been the worldwide leader in software for automating laboratory operations. Laboratories in diverse industries have modernized their operations and processes, using LabWare LIMS (Laboratory Information Management System) and ELN (Electronic Laboratory Notebook) to electronically document experiments, track and manage samples, perform environmental monitoring, manage stability studies, and more.

Request a Demo