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# Free LIMS Buyer's Guide: How to Choose the Right LIMS for Your Lab

# The Free LIMS Buyer's Guide: How to Choose the Right LIMS for Your Lab

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# How Do I Choose a LIMS? - An Introduction

Welcome to the LIMS buyers' guide. As much as this is a free copy, it contains tons of information on purchasing a LIMS that will meet your needs and be cost-effective in the long run.

A LIMS is one of the most important capital investments that you will ever make for your lab. It is therefore very important to understand everything that there is to know about this process.

Purchasing a LIMS is not just about walking into a vendor's shop, talking to a salesperson, and leaving the shop with the LIMS that had the best presentation. No, this will never work for LIMS.

Purchasing a LIMS is a journey that starts the moment you sense the need to invest in a new LIMS or decide to replace your existing one. It involves different stakeholders whose contribution is very important. There's no need to purchase a LIMS that is "unacceptable" to other members of the team either because of the features, ease of use, cost, or any other factor.

The LIMS that you purchase should meet not only the current laboratory's requirements but it should also make room for future development. Unfortunately, there are not many LIMS in the market today that have sufficient flexibility to be adequate in the next five to ten years, and so on. This guide provides a detailed overview of the selection and implementation process of a standard LIMS.

Lastly, you should be aware that the responsibility for successfully implementing a LIMS project does not lie entirely with the supplier but the customer has an equally important role to play.

This free LIMS guide is an easy-to-read tutorial that walks you through the journey of purchasing the right LIMS for your laboratory. It is not specific to any industry and can therefore be used across industries. It breaks down the essentials of a good LIMS, which depends on your lab's needs and requirements, and explains the costing considerations for different types of LIMS. It also lists common pitfalls that should be avoided when purchasing a LIMS.

# Who is this guide for?

This LIMS guide is for every member of a team that's looking to purchase a new LIMS, and not just the management. It is intended to guide the entire team through the process of brainstorming for a LIMS solution to making the final purchase based on predetermined criteria. It should involve the management, IT personnel, lab managers, and everyone who will be using the LIMS.

# When should it be used?

This LIMS buying guide should be read as soon as you sense the need to get a new or a replacement for your existing LIMS. This will help you prepare adequately for the journey ahead. The usefulness of the guide doesn't end when you purchase the LIMS but rather it remains as a useful resource for as long as you have the LIMS.

This LIMS guide provides current and up-to-date information on features in modern LIMS. In case you already have a guide in place, this copy can help you brainstorm existing issues with your LIMS and provide insights on what can be done to address those issues.

Once you determine that you need a new LIMS, it can take anything between one to three months before you are actually ready to make the purchase. This is, of course, influenced by your decision-making process, how soon you can come up with the money, and the availability of a LIMS that meets all your requirements. Therefore, it is important to go through this guide at least a month in advance so that you don't waste a lot of time. It is also advisable to read the entire guide before you start the process. This will prevent the back and forth that may happen once you discover that you missed some key things.

The entire guide should take you about 2 hours to complete. Is that too much time to educate yourself on what it takes to purchase a LIMS that meets the needs of your lab and to avoid the pitfalls? It shouldn't.

# Introduction to LIMS & its Importance in a Modern Lab

This section introduces a Laboratory Information Management System (LIMS) and its importance in a laboratory setting. A LIMS is basically a laboratory management software solution that supports a laboratory's day-to-day operations. There are different kinds of LIMS with different features and functionalities. That's why it is important to understand what you are looking for before you purchase a LIMS. It's equally important to identify the potential benefits that a LIMS offers your lab. Such benefits will vary from lab to lab and ultimately will be the basis of your purchasing decision. There are some common benefits of a LIMS that will be present in all LIMS solutions, we have listed some below. Some benefits are only present in certain kinds of LIMS and these should be factored in your purchasing decision.

The benefits of purchasing a LIMS should not be restricted to the obvious tasks and functions of the LIMS. Remember that LIMS is a management tool and therefore it offers several management benefits. However, a LIMS only serves as a management tool when the correct one is purchased.

In this guide, we have listed several potential benefits of acquiring a LIMS. After reading through the list, you will be able to know ones that apply to your industry and laboratory specifically. Your laboratory staff and other involved personnel are instrumental in identifying the positive impact of implementing a LIMS. Ultimately, the benefits should be quantifiable and objective.

# Benefits of a LIMS

Here are some examples of potential benefits that should be considered prior to purchasing a LIMS:

- It eliminates paperwork which consumes a lot of time and space and information can be compromised easily.
- It makes it easy to retrieve information.
- It speeds the process of generating regular laboratory reports and hence increases laboratory productivity.
- It makes it possible for clients to register their samples, monitor the status, and retrieve approved results remotely.
- It eliminates data transcription.
- It provides intuitive and efficient workflows and allows new workflows to be added seamlessly without needing extra help from the vendor.
- It manages samples throughout their lifecycle while maintaining a chain of custody. Samples can be traced to their location at any given time. By stamping all data and entries, a lab will be able to adhere to quality standards and ensure regulatory compliance.
- A cloud-based LIMS solution will provide real-time and round-the-clock access to lab data, thereby increasing efficiency.
- Some LIMS can be integrated easily with other lab software and equipment to allow data sharing.
- A LIMS provides long term benefits as an effective LIMS will provide information to guide management's decision making.

# Appointing a LIMS Champion

Now that you are well acquainted with the potential benefits of acquiring a LIMS, where do you start?

Like with most other team projects, it's advisable to start by appointing an internal "LIMS champion" to champion and rally support for the project. It is equally important to have an assistant LIMS champion who is up to date on the progress and can easily step in should the need arise; for example, when the champion is unwell or even leaves the organization. The LIMS champion should buy into the vision of the LIMS project and be able to rally support for the cause. They should strive to include all team members' support for the project. They should also be acquainted with the entire process of purchasing a LIMS, which should start by reading and understanding this guide. Lastly, the champion should be aware of the quantifiable benefits of acquiring a LIMS and be able to communicate the same to other team members.

*Reference*

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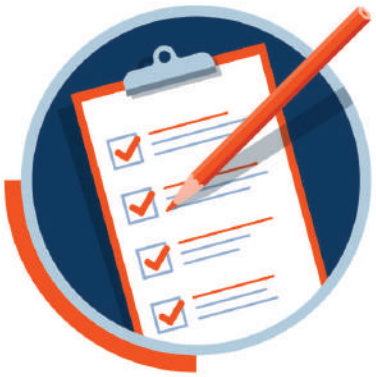
# Creating a LIMS Requirements Document for Your Lab

There are many good LIMS out there, but not all are good for your lab. This means that it's important to know the particular features in a LIMS that meet the needs of your lab. You should start by creating a LIMS Requirements Document (LRD) that outlines the unique needs of your lab.

When creating a LRD, you should bear in mind that your lab's needs are likely to change over time. Hence, there's a need for some flexibility. The LRD should not only cater for your current user requirements but also should cover needs that may arise in the next five to ten years to secure your data and investment. Such flexibly should be in-built and not vendor-dependent. In other words, you should not require a consultant to update the LIMS to address emerging issues as this may balloon your operational costs significantly.

## Start by Creating a Checklist



You need to start with a checklist that outlines the unique features of your lab that must be catered for. This includes the roles that the LIMS should play now and in the future as well. The checklist should also include the number of users initially and in the future. These factors should provide you with a ballpark estimate of how much the appropriate LIMS will cost.

Unfortunately, there are not many LIMS in the market with this capability. You will be required to search hard to find a suitable LIMS, but this LIMS buyer's guide is here to make the process easier.

# 3 Housekeeping Rules for Your Checklist

**1. Avoid Verbosity**

Because this is a formal document, you should steer clear of flowery language that fails to make a point at the end. Avoid using too much tech jargon that throws off the reader.

**2. Maintain Flexibility**

Rigidity will render your document obsolete in a short period of time. There's a need for some level of flexibility when specifying features. Rigidity may also prevent you from enjoying new features that may be available in a newer LIMS.

**3. Maintain Objectivity**

It can be tempting to be ambiguous when creating your checklist, but this will cost you in the long run. Avoid terms such as "interested", user-friendly", and "complete", as they are not quantifiable.

With those three house rules in place, let's move to the LRD outline, what must be included.

# Overview of the Project

The LRD should begin with an overview of the entire project. This can be divided into four segments:

- Company overview
- LIMS overview
- Hardware and operating system overview
- Database overview

The overview gives you a bird's eye-view of the entire project and what functions the LIMS will be supporting. It involves reviewing the vision and goals of the organizations and quantifying benefits that the LIMS will provide.

**1. Company Review**
Begin by providing an overview of the company and how the LIMS solution will support the company's objectives. Identify the personnel that will be involved in the implementation of the LIMS. This should be about 2 pages long.

**2. LIMS Review**
Once you have outlined the company's goals, describe the roles that the LIMS will perform. This should include creating efficiency, boosting productivity, and increasing profitability. This should also be about 2 pages long.

**3. Hardware and OS Review**
Describe your preferred hardware and operating system and give reasons why they are ideal for your laboratory. Specify that you need the LIMS to be synchronized with the existing hardware and software.

**4. Database Review**
Specify preference for a particular database, if any.

# Technical Requirements for the LIMS

Once you have reviewed the general requirements, you can then proceed to review the technical requirements of the LIMS. This requires a thorough understanding of the roles and functions of the LIMS and how it should be implemented. It includes 12 different functions as listed below:

**1. Manual data entry**

This involves using keyboards to manually key-in data such as biometrics or sample data. Specify the checks and balances that should be put in place to prevent errors.

**2. Automatic data entry**

Specify if there's an option for automatic data entry. Also, provide checks and balances to prevent breaches of the data.

**3. Data Validation and Approval**

Once data has been received in a lab, it needs to be reviewed for accuracy, consistency, and needs to be validated. Specify the requirements for submitting samples for re-test and rejection criteria.

**4. Generation of Reports**

Specify the different types of reports that should be generated, automatically and on demand. You can mention examples of how the reports should appear, but leave some room for adjustments based on the functionalities of the new LIMS. You can also include information on how the reports should be delivered to stakeholders or customers and at what time of the day.

**5. Statistics and Calculations**

The company will need to do calculations and deliver statistics to support decision-making. A LIMS supports this function. Indicate whether the LIMS should have the in-built capability to handle statistics and calculations or whether a LIMS interface can be deployed.

### 6. Graphics

Specify requirements for a graphics package or if this exists on site, an interface can be created for the LIMS.

### 7. Communication

Outline all the different kinds of communication that may be required and how they will be delivered.

### 8. Security

Laboratory information is sensitive and must be protected at all times. The LRD needs to outline the access rights for each personnel and security measures that have been put in place for the LIMS.

### 9. Archiving

Describe the archiving process, specifying the duration (after how long), by whom, to where, and at what time. Also, indicate classes of samples and data that may need to be stored for longer durations.

### 10. References

The LRD will need to have references that should be incorporated to support claims and figures. Specify the type of references that are acceptable and required.

The Requirements Document, once finalized, should be shared with suppliers for further input. Give them ample time to go through it and respond accordingly. The LRD acts as your compass in this journey of searching for the perfect LIMS solution. Sufficient time and focus needs to be channeled into this document. Once you have it ready, you can share it with several suppliers who will then offer solutions that suit your requirements.

# Can you trust your LIMS provider to sell you the right product for your needs?

At the end of the day, the LIMS provider is a salesman and may therefore have their own best interests at heart. It's different when you know exactly what you are looking for and therefore you go out to find a LIMS that matches your specifications. This will take a level of expertise to get right. Remember that failing at this point can be very costly. Purchasing an inappropriate LIMS solution will be expensive as you will need to replace it. It's even worse when the LIMS performs its roles inappropriately. This will result in errors and may risk your company's reputation needlessly. Is it advisable to engage a LIMS consultant to guide you through the process of purchasing a LIMS? The answer is in the section below.

# Should You Use Consultants When Buying a LIMS?

It depends.

Consultants can be an invaluable resource when you are purchasing a LIMS. They act as your guides, informing you of every new feature that could be of interest to you and ensuring that you do not miss out on any key consideration. However, not every lab will need a consultant and again, consultants do not know everything about LIMS. Additionally, consultants come at an extra cost.

You do not need to know how to write software to be able to understand a LIMS. Here are a few things that a consultant can help you with:

1. Guide you through the process of creating a LIMS requirements document
2. Connect you with potential suppliers
3. Organize and participate actively in demonstrations

When looking for a LIMS consultant, you must ensure that they are not sales agents of certain suppliers. Some consultants could also be ex-employees of LIMS providers and depending on how they left the company, they might be biased.

Consultants who are paid commission may also insist on more expensive LIMS solutions so that they can get better commissions. Such consultants may drive the demonstration in a direction that they want it to go so as to close the deal, even when all your requirements have not been met. In one case, a consultant insisted that the LIMS had a configuration that would require a custom code to operate. Since this is something that most people would wish to avoid, the customer ended up declining the LIMS, while in actual sense, it met all the company requirements for an appropriate LIMS. That's why it's important to prepare adequately in advance to avoid being exploited.

Some consultants are IT experts with no knowledge of how LIMS works. You can always determine this by conducting an interview prior to hiring a consultant. The interview will help you assess their knowledge of your industry and how up-to-date they are with the latest tech developments relating to LIMS.

Some consultants will charge exorbitant fees. They may come up with loads of paperwork to demonstrate that they are working but this may not be necessary. That's why it's important to know what's required (Requirements Document) before you even think of engaging a consultant.

Once you know what you are looking for, purchasing a LIMS should be basic. Also remember that the best LIMS providers rarely have the time to go through 200 pages of Requirements Document. They are usually busy handling their large client base. Therefore, it is necessary to stick to the essentials and cut out what's not important.

That's why it's important to know what's required (Requirements Document) before you even think of engaging a consultant.

Those are all the considerations that you should make before hiring a consultant. While their help can be invaluable, there are a number of pitfalls that you should be aware of and hence avoid.

# How Much Does a LIMS Cost?

How much does it cost to purchase a LIMS?

The cost of a LIMS is not standard and chances are high that you will find one that both meets your needs and fits your budget, if you look well enough.

As earlier echoed, your Requirements Document still plays an important role here. The cost of a LIMS will vary depending on the LIMS features. However, before we get to the features, the platform that hosts the LIMS is also a key consideration. There are three different kinds of platforms:

- Free or Open Source
- Software as a Service (SaaS)
- Traditional ( client/ server)

The primary consideration when purchasing a LIMS is finding the type of system that best suits your laboratory. There are three different kinds of LIMS hosting environments to consider:

1. A self-hosted LIMS environment means that your LIMS operates from a centralized on-site location. The customer purchases the infrastructure and is therefore responsible for the maintenance of this system.

2. A Platform-as-a-Service (PaaS) LIMS is a hybrid system offering both on-site and cloud-hosted solutions. Hence, the responsibility for installing and maintaining the system is shared between the vendor and the customer.

3. A Software-as-a-Service (SaaS) LIMS is completely cloud-hosted and is therefore accessible from any location as long as there is Internet access. The customer enjoys the system while the responsibility for maintenance of the software and upgrades is of the vendor.

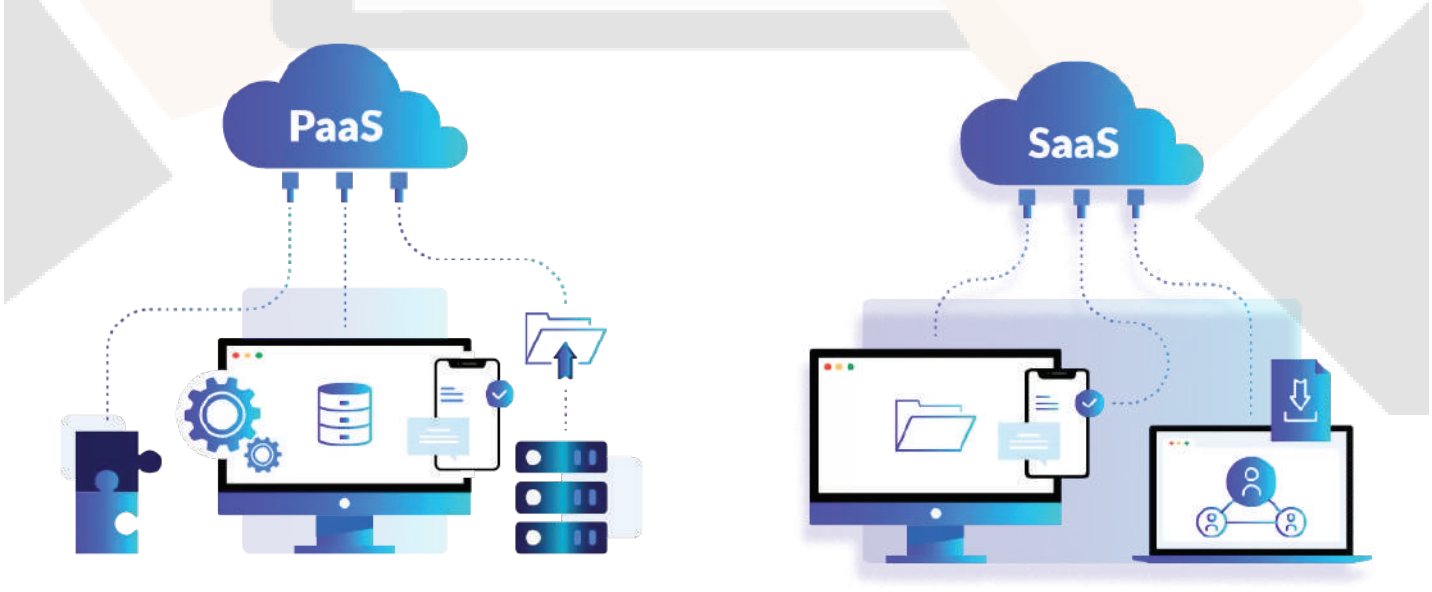
When selecting the appropriate type of system, you need to consider the number of locations for your lab, the nature of your client, your budget, and the processes in your lab that need the LIMS.

# PaaS Versus SaaS

A PaaS LIMS offers the laboratory full control over the implementation of the LIMS starting from mapping to the end without having to incur the full costs of maintaining the infrastructure as would be the case with an on-premise LIMS.

The hybrid approach allows the PaaS system to hand over the daily maintenance of the system to the vendor. This gives the lab sufficient time to focus on its core business. With several customization options, PaaS LIMS can be configured to align with each work process. The lab is also able to choose the enhancements that are important to the implementation, as well as decide when to implement those changes. On the flip side, such customization options may have heavy cost implications. Validations and upgrades on PaaS platforms can also be very expensive.

A SaaS LIMS is validated according to best practices in the industry. This includes infrastructure and the daily maintenance of the system. SaaS offers fast implementation (as fast as a week) and offers great help in sorting out regulatory issues. It does not require validations and system upgrades occur automatically. Generally, a SaaS LIMS is a quick, cost-effective choice, and efficient. Compared to a PaaS LIMS, a SaaS LIMS lacks the ability for as many customizations, but offers several other advantages, over and above those offered by PaaS.




**Is SaaS LIMS Right for Your Laboratory?**

**Read the Article**

# Cost factors Associated With a LIMS:

**1. Software Licenses**
You will need to purchase different software including the LIMS itself and others such as databases and instruments.

**2. Optional Modules**
To customize the LIMS, you may need to purchase extra modules or additional functionality such as instrument interfacing, calibration, and stability.

**3. Hardware**
You may need to purchase infrastructure such as reverse and routers. This mostly applies to traditional LIMS. You may also need peripherals such as laptops, mobile phones, barcode readers, and printers.

**4. Implementation costs**
These are the costs involved in rolling out the LIMS. Some providers may cater to this entirely but some will not. This needs to be discussed in advance.

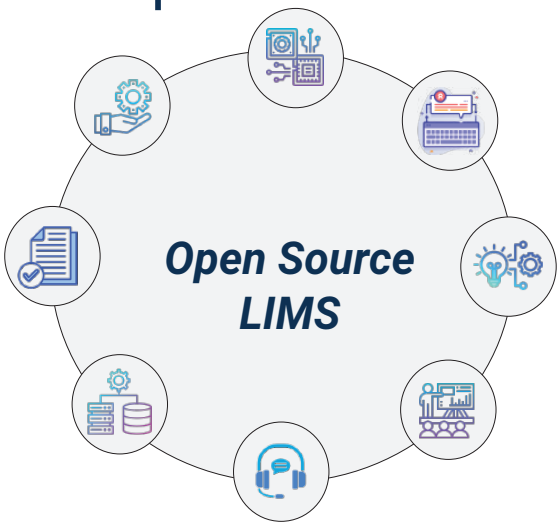
**5. Customization costs**
Some LIMS will require customization which may be offered at an extra cost.

**6. Staff Training**
Even if your staff members are familiar with LIMS, they may require extra training when a new LIMS is acquired. The LIMS might have new features and even if it doesn't, some extra training is always helpful.

**7. Support services**
Purchasing a LIMS isn't just about getting the LIMS up and running at your facility but it's a continuous process that spans the entire lifecycle of the LIMS. Some providers will charge extra for support services but others will not.
Here are more specific examples of costs that you should expect to incur with each platform.

# Costs associated with an Open Source LIMS

- Hardware
- Peripherals
- Implementation
- Customization
- Training
- Validation
- Support
- Databases (Maybe)




# Costs associated with a SaaS LIMS


- User Licenses
- Optional Modules
- Peripherals
- Implementation
- Customization
- Training
- Validation
- Support
- Database Licenses (Maybe)

# Costs associated with a Traditional LIMS

- Hardware
- User Licenses
- Optional Modules
- Peripherals
- Implementation
- Customization
- Training
- Validation
- Support
- Database Licenses (Maybe)

In some cases, it may not be possible to provide a definite answer, hence the maybe. This will depend on vendor practices which may vary significantly. Some costs are also dependent on third-party providers. For example, while freeware or open source LIMS may not incur implementation costs from the provider, you will still have to incur costs personally or through a consultant when implementing the system.

## Stakeholders in Purchasing a LIMS

Purchasing a LIMS is never a one-person affair. At the end of the day, this is a system that will be used by several people either directly or indirectly. Therefore, it is important to take their opinions and perspectives into consideration. In this section, we shall be looking at the different stakeholders that are involved when buying a LIMS.

**1. Senior Management**

Senior management will need to buy into the LIMS project, even before anyone else does. Apart from providing the financing, they provide direction for the team and need to incorporate the LIMS into the broader objectives of the company. Therefore, they must be involved right from the identification of the need for a LIMS up to the implementation.

**2. Budget Committee**

In some companies, the budget committee is separate from the senior management team. In such a case, the budget committee needs to be involved so that they can provide a tentative budget for the project, and approve or disapprove the LIMS once it's been selected, based on the budget.

**3. Laboratory Manager**

The laboratory manager has a vested interest in this process since s/he will be directly involved in using the LIMS. The lab manager plays an active role in creating the LRD that will determine the features and hence cost of the new LIMS.

**4. IT Manager**
The IT manager is the caretaker of the new LIMS. They must rubber-stamp the requirements and specifications. They are also responsible for ensuring the successful implementation and running of the LIMS project. They must therefore be involved in the purchasing process of the LIMS.

**5. Quality Assurance Manager**
The QC manager must verify that the new LIMS meets the quality requirements of lab processes. This may include checking to ensure that the LIMS is secure and supports quality assurance measures.

**6. Scientists**
Scientists will be using the LIMS both directly in managing samples and data as well as indirectly in decision making. Their interests and concerns need to be prioritized when purchasing the LIMS.

**7. Compliance Managers**
Cannabis testing and clinical labs operate in strict regulatory environments. The LIMS selected should be able to support compliance objectives and therefore compliance managers need to be involved in the purchasing process of a LIMS.

**8. System Administrators**
The system administrator handles the day-to-day operations of the LIMS. This includes managing users, access rights, and system integrations among others. The system administrator is therefore a key stakeholder in the LIMS acquisition process.

**9. Lab Customers**
Ultimately, the primary objective of the LIMS is to ensure customer satisfaction. Therefore, their needs and concerns need to be prioritized.

# Finding the Total Cost of a LIMS

In the previous chapters, we have gone to great lengths to demystify the costing of a LIMS. We have discussed the different LIMS platforms and the costs that are associated with each. We have also discussed the cost factors and stakeholders. Now, we shall delve deeper into the different LIMS environments and how they affect the total cost of the LIMS.

There are three kinds of LIMS environments as follows:

- Self-hosted
- Software-as-a-Service (SaaS)
- Platform-as-a-Service (PaaS)

While a self-hosted LIMS typically uses centralized infrastructure, PaaS and SaaS have their data stored in multiple remote locations. This increases access and the overall efficiency of the network. Here are the factors that affect the total cost of the LIMS.

**1. Lab Infrastructure**

A self-hosted LIMS involves the full infrastructure costs of the LIMS. This includes the purchase and installation of servers as well as deploying a team to handle the maintenance and upgrades of the infrastructure.

SaaS and PaaS, on the other hand, can use the infrastructure of the LIMS vendor. Some vendors will include IT management in the subscription while others will not. These LIMS are also scalable and the server capacities can be increased to meet the lab's growing needs. Additionally, they have in-built data backup and recovery capabilities.

**2. IT Infrastructure**

A Self-hosted LIMS will have perpetual licensing while SaaS will be limited to subscriptions. PaaS, on the other hand, will have both perpetual and subscription options.

The pros and cons of each depend on how long you would want to use the LIMS and the predictable costs that will come with this.

A self-hosted LIMS with perpetual licensing will incur a capital expenditure and may be expensive in the long run as you will have to keep paying for the entire duration of the agreement. However, you can make some savings short-term since the initial costs are minimal.

PaaS is flexible and may allow you to use either perpetual or subscription based. You may also have the option to customize and make subscription payments on a need basis.

A SaaS-based LIMS operates on a subscription basis and the costs are considered to be operational expenditures. This can mean lower costs in the long run, especially when minimal customization is required and industry best practices are maintained.

Setting up IT infrastructure for a self-hosted LIMS is time intensive and will require several customizations. This protracts the preparation time and delays the deployment of the LIMS software.

While the PaaS can be customized, it leverages the existing IT infrastructure. It's a hybrid system with upgrades that are done on an ad-hoc basis.

A SaaS LIMS has unique customization and configuration abilities. In the long run, a SaaS LIMS is the least expensive and takes the shortest time to deploy and implement.

**3. The Implementation Process**

A self-hosted LIMS will require full validation before it can be fully implemented. All changes and customizations must be validated and this can be time consuming.

A SaaS LIMS, on the other hand, does not require validation. The lab processes are pre-mapped to the system and hence eliminates the need to customize the LIMS system to fit the process. While the lab has the responsibility of validating the system, it can still get validation support from the vendor.

**4. Data Validation**

A self-hosted LIMS and PaaS may be able to migrate lab data, but the process can be very costly both in terms of time and money. The useful data being migrated is likely to be a small fraction of the total data. Therefore, the costs involved may not justify the total expenditure. When all factors are considered (cost-benefit analysis), it may not be financially prudent to migrate the data.

On the other hand, SaaS does not require data migration unless for stability studies or when moving from one software to another.

For self-hosted and PaaS LIMS, the lab management will have to organize their own training or hire a consultant. For a SaaS LIMS, the training is usually included in the subscription service. At the end of the day, training is a necessary process when acquiring a new LIMS and should therefore be included in the total cost of acquiring the LIMS. It is important to include training in the budget for a new LIMS. The training could either be in-person or virtual. Failing to train your staff will cost you in the long run when they are not able to use the LIMS effectively and hence productivity drops.

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# How to Find the Right LIMS Vendor

In the previous sections, we have laid the background on what it takes to find the right LIMS for your company. We have discussed how to come up with a requirements document that addresses the LIMS needs of your company. We have also discussed the different stakeholders that should be involved in the process of purchasing a LIMS and broken down the cost of purchasing a LIMS based on the platform and features. Now, we shall look at how to find the right LIMS vendor. What should you be looking for in a LIMS vendor?

The process starts with knowing where to find LIMS vendors. Once you know this, you can then proceed to evaluate different suppliers, organize the first meeting, set up a demonstration, and finally make the purchase decision.

## Where to Find LIMS vendors

Thanks to the internet technology, you can now find several LIMS providers online without leaving your office. However, while the internet gives you various options, you will need to do your due diligence to ensure that you don't get duped by false marketing. That's why it's always important to check what other customers and employees have to say about the potential LIMS vendor. Here are four places to search for a LIMS supplier:

- Google search with the keyword "LIMS vendor near me" or something related
- Review sites such as G2. Look for customer reviews and recommendations on review sites.
- Trade shows

# How to Evaluate a LIMS Vendors

Use the platforms mentioned above to come up with a list of potential vendors who have a proven track record and several positive reviews. Do not be afraid of trying out a LIMS vendor who's new to the market and therefore lacks reviews, just make sure that they have no negative reviews and that they meet your other criteria. What they may lack in expertise, they might make up for with "hundredfold" dedication to your project.

Pick up your list and begin making calls. You might find that this initial step trims your list by about 50%. If the phone support is not adequate at the initial encounter, even before they close the deal, chances are high that the support offered will not be good as well.

Ask the right questions during the first call to prevent wasting your time and that of the vendor as well. Even before you get to the LIMS specifications, determine if your work ethics and culture are compatible with that of the vendor. A vendor might have the perfect LIMS, but if they are rude or difficult to deal with, you may not be able to work with them in the long term. A vendor who likes to cut corners may also not be a suitable bet, even if their prices are fair.

You want to partner with a LIMS vendor who will not close shop six months after you purchase the LIMS. How do you know if the LIMS vendor will be in business for a long time? This starts with finding out how long they have been in the market. Companies that have been in the market for a longer time are unlikely to make an abrupt decision to close shop. Even if the company winds down, the process is likely to be gradual.

The financials of the company are also a tell tale sign on the longevity of the company. While it is easy to fall for "market leaders", new but growing companies may have a lot more to offer your business. The latter are likely to be less complacent and more responsive to your changing needs and requirements.

## Should you rely on marketing propaganda?

Unfortunately, marketing propaganda can be misleading. Some companies will spend a fortune on creating eye-catching brochures to oversell the features of their LIMS. Some LIMS vendors will also claim that their software is "approved". There's no such thing when it comes to LIMS as each lab will have its unique needs. What will work for one laboratory may not work for the next one. In short, you must learn to look beyond marketing propaganda and flowery language. A better approach is to focus on the features of a LIMS that meet your specific needs.

## Setting Up the First Meeting

By now, you must have narrowed down to very few LIMS vendors (2-4) who meet your criteria, and now you need to make the final choice. Take note that this is not the point where you have the vendor do a demonstration of how the LIMS operates. This is just a "reconnaissance" meeting where you get to present your company's objectives and the role that the LIMS will play. This will help the vendor understand your company better and craft a solution to suit your needs. Both parties can ask general and specific questions at this juncture to determine whether and how to work together. Questions such as the direct and indirect roles of the LIMS, who will be using it, tentative budget, etc., should be addressed.

This interaction will help the vendor determine features that may be of help or otherwise.

It is advisable to have this first meeting at the client's premises. You can choose to meet online as well. The vendor will be able to meet the team and conceptualize how the LIMS will function once deployed. The vendor can talk to team members to find out some of the challenges they encounter that can be addressed by rolling out a LIMS. The vendor will also be able to gauge efficiency and productivity levels and recommend solutions that the LIMS might offer.

The vendor can make a slideshow that captures the unique features of the LIMS solution and how this marries with the current needs of the lab.

# Setting up a LIMS Demonstration

After the first meeting, you can prepare for a demonstration. Here are 10 things that can be done to maximize the benefits of a LIMS demonstration.

1. Create a checklist and share it with your team members in advance. The checklist should cover the important features of the LIMS that can be ticked against. Team members should verify that all the important points have been covered during the demonstration. They can also make notes and comments on issues that need to be raised and addressed.

2. Create a detailed agenda with the vendor in advance. Both teams should be familiar with the agenda that should be covered. Some room should be left for issues that might arise in the course of the demonstration.

3. Discuss system configuration needs. The vendor should have the opportunity to demonstrate how the configuration works and the resources that will be needed for this. You do not have to inform the vendor in advance about the configuration needs to prevent them from incorporating it in advance. Raise the issue during the demonstration and see how long it's going to take to have it up and running. This will also give your staff the opportunity to learn how to make the configuration. Some new tools are available to set up configuration in record time. Don't be surprised in case your vendor is not aware of such.

4. Since the demo is a follow up of the previous telecon meeting, the vendor should personalize their demo. The vendor should have taken the time to create a fresh presentation and should not reuse what has been presented to other customers. If there is no extra effort towards the presentation, you are better off fleeing. For an old company, this might be a show of arrogance or complacency. It's even worse for new companies that may lack the expertise and discipline to follow through.

5. Take note of the duration of the presentation. Is it taking too much time to deploy? Is the process too complicated? In case it is, ask the vendor to break it down or simplify. In case you still don't understand it, then it probably isn't the best. Some vendors are very witty and will try to sugarcoat a slow system by incorporating numerous slideshows to buy time.

6. Allocate sufficient time for each demo to prevent last-minute rush. Some vendors will request to be slotted as the last presentation, hoping that by this time, the staff will be too tired and therefore disinterested in asking questions.

7. Make sure that all vested parties have been included in the demo. In case you have different labs, you must get representatives from each. There should also be more than one IT person present. In case the one person did not understand something or forgets, the other person can save the day.

8. Maintain objectivity to prevent being carried away by a flowery presentation. If the vendor purports that the LIMS can handle various sample types, let them demonstrate just that.

9. If you don't like the demonstration, you probably will not like the real product. Don't force yourself to accept a system out of sympathy. In case your members are divided about what they feel about a particular LIMS, it may be necessary to conduct a poll. But first, the staff must explain why they have a preference for one over the other and their arguments must be objective.

10. Stick to the checklist. After the presentation, go back to the checklist and counter check each item, ensuring that it has been well demonstrated. If most of the items are unchecked, it's probably not the best LIMS for you.

**After the Demo**

It's always advisable to have demos for at least three systems on-site. Some vendors will require a small payment, especially if you require that they make configurations. It's better to incur this minimal cost than to purchase a LIMS that can't be of use at the end of the day. Whether the vendor charges for the demo or not, never skip this step.

**Once the vendor has completed the demo, what happens?**

It's time to make the purchase! That only applies if you have found a LIMS that meets both your criteria and can fit into your budget. If that's not the case, then you must start over with finding more vendors.

**Real Life Stories**

Here are some real-life stories to help you understand the importance of the steps mentioned above. One company was looking to purchase a LIMS. However, they shot themselves in the foot by failing to prepare a good LIMS Requirements Document. They prepared it in a hurry and the process locked out all but one vendor. When they sent it out, most vendors declined to take part while a few who struggled to submit the bid were doomed to failure at the start.

This unprofessional approach was a costly mistake as it locked out vendors with features that were unknown to the client. The requirements document was too specific and rigid. The customer was not aware of the latest developments in the LIMS space and subsequently, they missed out. During the demos, the vendors struggled to keep up with the restrictive requirements and could therefore not prove their mettle. The vendor with the "oldest" system won the day, but the customer suffered in the long run. From this story, we should learn the importance of taking time and consulting with experts when creating the requirements document.

## Classes of LIMS Software

LIMS software can be divided into different classes as follows:

- Bespoke software
- In-house written software
- Pretend LIMS
- Genuine LIMS

**Bespoke / Custom Software**

This type of software is written specifically to meet your personal requirements and is therefore, a one-off program. It represents requirements in a "snapshot in time". For obvious reasons, it may have more problems compared to off-the-shelf software. If you decide to go with bespoke software, here are some questions that you should ask:

1. Are the developers likely to be in the market a few years down the line?
2. Does the software have sufficient support?
3. Will there be a need for any enhancements in the future and in that case who will provide it?
4. Are the software standards acceptable even in regulated industries?
5. What happens to the bespoke software in case of technological advancements such as a Windows upgrade?

With all the inherent risks, most people don't prefer "bespoke" software. However, some others love it and have gone ahead to commission it even when existing software would do the job.

**In-house Written Software**

This is a type of bespoke / custom software but it is written by an internal IT department. It involves a lot of technical coding which may present problems to internal teams that are not highly specialized. Most in-house software projects fail because the team runs out of budget before the project is completed.

**Pretend LIMS**

Some software suppliers claim that their software offers the functionality of a LIMS and may therefore replace an existing LIMS. Most times, these claims are untrue, hence the name Pretend LIMS.

**Genuine LIMS**

A genuine LIMS is one that has been developed professionally from ground-up by competent and reputable software developers. Such a LIMS should be able to carry out all the roles of a LIMS. The costs are usually competitive but will vary from one vendor to another.

# Make Use of Customer References And User Groups

Before settling on a LIMS vendor, it is advisable to request for customer references. Most reputable LIMS vendors will indulge your request for references if you can prove some level of commitment. This may mean that you first submit your requirements document and select your preferred system. Only then will you be able to ask to speak to some previous customers to verify your choice. Don't skip this first step to increase your chances of being given the opportunity. Most vendors will not allow you to waste their time or that of their customers unnecessarily. Once you have been given access to customers, here's a simple approach to use:

**Ask the references about the nature of support that they have received.**

You may ask questions such as:

- Who picks the phone when you call or who responds to emails?
- How swift are they with their response?
- Is the technical support team helpful most of the time?
- Have you encountered any major challenges with the product so far and if yes, what level of help was accorded to you?
- Are you happy with the company so far?

Remember that users are likely to be busy people who are running their own businesses. They are not the vendor's salesforce. This should inform you to be brief with your questions and friendly at the same time.

**User groups**

The existence of user groups organized by customers for a particular software is unfortunately a sign of poor support. When users feel the need to help each other out and perhaps lobby an unhelpful LIMS vendor, you should be concerned. On the other hand, the existence of vendor-organized user groups for a new product can be a show of positive support and responsive management. If the vendor has a user group, you can request to attend one of the meetings where you are likely to get straight answers for any questions you might have.

# What is the Nature of Support And Maintenance Offered?

When purchasing a LIMS, it is important to determine the nature of support and maintenance offered. In case the LIMS fails in a month, what recourse will be available for you and who will you reach out to. Does this kind of support come at an extra cost? LIMS vendors offer support for three main reasons:

1. To show that the system is reliable
2. As a "service contract" between them and the customer
3. To safeguard their reputation in the market

**9 Questions to Ask About Support And Maintenance**

**1. Who is on the support lines?**

Find out who answers the call or replies to emails when you raise an issue and what is their level of expertise in the field. This should not be a mere "message taker".

**2. Is the support friendly?**

Since you may be dealing with the support and maintenance team at points when you're frustrated, it is very important that they are friendly.

**3. Is the staff turnover high?**

Avoid vendors with a high staff turnover. This speaks volumes about the work culture and it may take a long while before new staff members are competent to address issues arising from system failures.

**4. How many types of software do they support?**

Vendors with several software may not have staff that have in-depth knowledge on any one particular software. You might soon discover that you know more about the system than the vendor's staff and this should not be the case.

**5. Are the programmers accessible?**

Some companies will hire programmers from a different country that doesn't speak your language. It is important that the programmers are easily accessible, should you need their direct help with the software.

**6. How fast is their response?**
Most support calls are usually general and non-urgent. But occasionally, you may need rapid action. It is advisable to test the response prior and know how long it takes to get sorted when the need arises.

**7. What is the escalation process?**
It may happen rarely, but once in a while you may need to escalate an issue to senior management. You should find out how difficult it would be to access the management if you have to escalate an issue.

**8. Does the vendor provide software upgrades?**
Software upgrades should mean that the software has been improved and upgraded to serve you better and should never be a gimmick to get customers to part with more money for nothing in exchange. Also, you should not be forced to purchase a complete system over.

**9. What are the cost implications?**
Some vendors charge 20-25% for software support and maintenance yearly. Some will also charge separately for upgrades and enhancements.

## The Hardware

Some LIMS will require that you purchase new hardware while some will work with the existing hardware. Some vendors will also charge separately for hardware support.

When thinking about hardware, consider the cost implications (both short and long-term), the storage capacity, the number of users it supports, as well as the number of sites. The hardware should not consume too much space, it should just be sufficient to function optimally and have significant expansion capacity. It should also be updated regularly to enhance the speed.

# Questions to Ask About The Supplier

**1. How big or small is the company?**
While a big company can be appealing, it's easy to get lost in the woods and not find the support you need. But that doesn't mean that you wrote them off based on their sheer size. Check what their customers have to say about them, especially when it comes to support and maintenance. Some large companies will have great LIMS products but bogus support.

Smaller companies have their pros and cons as well. Very small companies aka start-ups may have excellent support services but their product may not be as competitive. You should never settle for a small company with pathetic support. However, should you find one with a great product and excellent support, it may be to your advantage to grow with them.

**2. How stable is the company?**
Stability is different from size. Stability refers to the possibility that the vendor will be in the market in the long term. Several multinationals have withdrawn from the LIMS market, for one reason or the other. LIMS software is not cheap and is not an investment you make every other month. Therefore, you need some form of guarantee that the company will be in the market and your software will be operational and supported for many years to come.

There's an option to have your software held in escrow. In this case, should the vendor go out of business, their support fiction will still be operational and you will not be adversely affected.

# How to Place The Order

Now that you have found a LIMS that meets your criteria and have found the perfect vendor, you may now proceed to make the order. This brief section walks you through the steps involved.

**Find the Hidden Bits**

Some costs are not obvious and it is therefore necessary to find exactly how much you will be expected to spend to have the LIMS up and running.

**Strike a Cordial Relationship**

The acquisition of a LIMS is not a one-off affair but rather it lasts for as long as the LIMS is in use, this can be several years. Therefore, it is important to start things off on the right foot. For as much as it depends on you, strive to have a warm and cordial relationship with the vendor.

**Find Appropriate Financing**

It is okay to seek financing for your LIMS purchase, but you need to find the right financing solution. Some vendors will allow you to lease or rent the LIMS while banking institutions may give you money to pay for the LIMS upfront. It is advisable not to over-extend the payment period; keeping it at three years is a good limit so you don't extend the usefulness of the product. It may also be advisable to enlist the help of a financial expert to help you choose the best financing option from the available options.

**Plan the Installation Date**

Once you make the order, it may take a few weeks before the system is installed. Make prior arrangements to have your team available for the installation.

**Installation and Acceptance**

Once you make the order, discuss with the supplier the terms of acceptance. You may not need to make the full payment when you order, but you will need to do so at acceptance. Some vendors will reject acceptance "upon customer satisfaction" as some customers will remain dissatisfied even when all requirements have been met. Some will also reject acceptance when the system is "fully live" as its customers may not be needing some features so the system will not go fully live.

# Before you purchase a LIMS, you need to ask yourself a few questions.

**1. How soon do I need my LIMS to be up and running?**
If you are in a rush against time, you probably want a LIMS that can be deployed almost immediately and will not require heavy financial investment upfront. In that case, a cloud based SaaS LIMS might be your best bet. A majority of this class of LIMS can be deployed in less than 30 days.

However, if you have a couple of months to while away as you search for a LIMS, you can take a risk with a traditional LIMS that will require sufficient time to put in place the infrastructure to support the LIMS.

**2. Should I prefer an on-premise or a cloud-hosted LIMS?**
There are little to no advantages of having a LIMS that's hosted on-premise, no wonder there's a major shift towards the latter. A cloud hosted LIMS provides 24 hours access from any location as long as one has an Internet-enabled device. This promotes collaboration and increases the speed of decision making.

**3. What's my budget for the LIMS?**
At the end of the day, your budget will determine your purchasing decision. But that doesn't mean that you have to settle for inferior software due to budget constraints. A SaaS LIMS does not have huge startup costs because there is no capital expenditure on infrastructure. Once you have created a comprehensive requirements document and sent it out to different vendors, you may be able to get a proposal that's within your budget.

# How To Implement a LIMS

You have come a long way and should give yourself a pat on the back. By now, you have already settled on a vendor and purchased your LIMS. The next section is intended to guide you through the process of implementing the LIMS. Here is a summary of the important steps:

**1. Begin by reviewing project requirements**

- Define the project scope, the deliverables, and responsibility of each team member
- Install the core system
- Prepare functional specifications
- Configure if this is necessary. This may need to be done in stages
- Conduct staff training to familiarize with the new LIMS
- Deploy instrument interfaces if needed
- Conduct the final review meeting
- Conduct the final and acceptance testing
- Conduct a formal staff training
- Assign and deploy project-specific tasks

Those are the highlights of implementing a new LIMS. Next, we shall be looking at each of these steps in greater detail. Ultimately, remember that no two projects can be implemented in exactly the same way. It's necessary to adapt the steps outlined to meet your specific requirements. Consider this as a proven framework that provides well defined goals, responsibilities, and milestones to guarantee joint success.

**2. Allocate Resources, Duties, and Responsibilities**

As with any other project, it is very important for the supplier and customer to have a clear understanding of each other's roles and responsibilities and to subsequently allocate sufficient resources accordingly. While the vendor has the primary responsibility of providing the LIMS plus other resources needed for

facilitate the process. There should not be a situation where either party is blaming the other for not fulfilling their end of the bargain. Team effort and a collaborative spirit are necessary to ensure a successful implementation process. Many people are involved in the process of implementing a LIMS. It is, therefore, important to have champions to ensure that the process remains on track. This is a focal point of contact selected from the company to run with the LIMS vision. They should be empowered enough to make some decisions on issues that come up during the implementation task.

From the customer's side, the roles of personnel can vary from one company to another. For example, the role of system management can be split into two: the laboratory aspect and the computer aspect. Remember that this is a mere framework to guide decision making during the implementation process.

**3. Set Up Post Order Actions**
What happens after an order has been placed?

Here are some things that should take place:

Once the order has been received, it must be acknowledged.
• A project file is then created and a project number is allocated.
• The vendor will then send to the customer different commercial documents such as the software license agreement as well as the software maintenance contract.
• The vendor may then contact the project manager to set a date and plan for the "first kick-off meeting".

**4. Set Up The First Kick-off Meeting**
This meeting should occur after you have received the LIMS purchase order and should be attended by the entire LIMS project team and the vendor's representatives such as the salespersons and their project manager.

**The objectives of the kick-off meeting include:**
Reviewing of the project requirements document as well as the functional specifications below which includes the following:

- Conforming the project pricing
- Confirming the project deliverables
- Confirming roles and responsibilities
- Confirming the project milestones and targets
- Confirming the project acceptance and timing
- Conducting a site inspection
- Installing the core LIMS

The kick-off meeting is intended to lay the foundation for the LIMS implementation. Here, a working relationship that is based on mutual trust and understanding should be created by both parties.
The project manager from the vendor's side will need to summarize the information and put it together as a project plan, but both parties need to agree.

**5. Create the Functional Specifications Document**
This is usually an optional consideration. Hence, it may be offered at an additional cost. The vendor's project manager will create a Functional Specification document detailing the user requirements and proposed configuration needs. This is usually necessary for multi-site projects that require significant configuration effort.

Preparing this document should take an iterative approach. Several meetings with the key stakeholders are necessary to get everyone on board. The series of meetings should culminate in a formal approval of the function specification which should be condensed into a document. Together with this document, a System Acceptance checklist may be prepared and cross-referenced for use in the final acceptance process.

**6. Set Up System Configuration**
The project manager from the vendor's team is responsible for the system configuration. They will use the provided system tools to configure the LIMS system so that all configuration requirements as specified in previous meetings (or the Functional Specifications) are met.

The project manager has the liberty to invite the project team to participate in the configuration process and give their input as the configuration progresses. However, they should be careful not to get derailed and lose track of time, which is always a possibility when too many people are involved in decision making. Extra care should be taken not to alter the primary objective of implementing the LIMS. Only critical issues should be prioritized to avoid derailing the entire project.

**7. Interface Laboratory Instruments**

Not all LIMS will require this step. This will only apply in case you need to interface your instruments with the LIMS. Your project manager should work with the IT team to create and implement suitable functional specifications. Since this is a different step from system configurations, the vendor might appoint a different team of specialists to handle it. Sufficient time needs to be allocated to gather all the information that may be requested by the vendor relating to instrument operation and other related functions.

The complexity of the process may delay the project by a few weeks. Your Project Manager plays an active role in coordinating all activities and resources to minimize time wastage and to ensure that all components are delivered in compliance with the mutually agreed schedule.

**8. Install the Configured System**

Once the LIMS has been configured, it will need to be installed. Some vendors will first install a preliminary version of the configured LIMS. If this is the case, it should be discussed in advance, at the beginning of the project and if there are any extra costs involved, it needs to be highlighted. Your Project Manager should also be able to advise if this will be practical in your setup. The primary objective of doing this is to allow the prototype to be reviewed and ensure that both the vendor and customer have a similar understanding of the project and it is on the right track.

Once the configured version is ready for delivery, the project manager should set the ball rolling. This begins by ensuring that appropriate arrangements have been made to successfully deploy the configured system. The system compo

nents such as the hardware, networks, and databases should be in good working condition prior to the installation. It's equally important to have someone from your IT department on-site to handle any network password/access issues that might arise.

**9. Conduct Familiarization Training**

This is the initial staff training that is done once installation has been completed successfully. It's the vendor's role to train you and your team on how the configured system should be used. Key project features need to be explained and the vendor should be prepared to answer any questions from the customer's team. It may also be important to highlight why the configuration was necessary. Your IT team should also be involved in this familiarization training so that they can learn how to administer the system from start to finish, including the startup, shutting down, and backup. The IT team may also need to create well-documented standard operating procedures or update existing ones.

**10. Organize a Review Meeting**

After the familiarization training, there needs to be a review meeting spearheaded by the project manager. At this meeting, the team should give and discuss feedback from the earlier stages of implementing the LIMS. The project team together with the vendor's project manager will subsequently review all the information harnessed from the review meetings and use it to incorporate new requirements or make postponements to define the scope of the project.

**11. Load the Data**

Once you have put all measures in place and now have a "stable" system, it is time to load data to the system. The project manager must give the go-ahead for this process to begin. The data to be loaded includes test and product definitions and other reference data. At this stage, the only aim is to load data needed immediately. You don't need to load all the tests that have been performed by the laboratory in its history!

When possible, data loading or migration should be carried out by your lab staff and not outsiders who may not be able to make sense of most of the data. This also presents the opportunity to better understand how the LIMS works. Bear in

mind that the data migrated will need to be approved before it is used. Also, your staff will need to sign off on sample analyses using the data that has been loaded.

### 12. Conduct the Final Acceptance Testing

Final acceptance testing of the system should be carried out based on pre-agreed criteria formulated at the start of the project. The testing needs to be carried out promptly once the final system has been delivered. If the Functional Specification option was undertaken, then the acceptance testing should follow it. A final acceptance test meeting will need to be scheduled by a member of your project team who is authorized to receive the system on behalf of your company. In some occasions, the LIMS is accepted subject to certain conditions or the resolution of documented issues. At the end of the day, this is a team effort and mutual success can only be achieved when both sides are flexible and exercise mutual understanding.

### 13. Going Live!

What you have been waiting for is finally here, the day for going live! By now, you have done all the checks and are sure that everything is in place. The whole team needs to be ready for this day and they need to understand their roles in operating the system. They should also know how to raise concerns should they arise and the proper channels of communication. The vendor should be present on this day to address any issues should they arise. They may be present physically or virtually.

# Importance of a Cloud-Based LIMS

Having LIMS services in the cloud is a trend that's fast rising in popularity. As lab managers continue to understand the numerous benefits associated with a cloud-based LIMS, they are ditching traditional LIMS and embracing the change.


A cloud-based LIMS stores data in the cloud and allows real-time and secure data access from any Internet-ready device. Here are some benefits that come with deploying a cloud-based LIMS:

**1. Supports Regulatory Compliance**

A LIMS helps a lab to keep up with all the regulatory requirements. A LIMS stores all the data and records that are needed for compliance. It makes it easy to access, update, and retrieve information with just a few clicks. A LIMS validates the data and eliminates human/transcription errors that may frustrate the compliance process. A LIMS also ensures that the data stored is backed-up and secure. With a good LIMS in place, labs within regulated industries will not need to struggle with compliance.

**2. Offers Greater Precision**

A Laboratory Information Management System (LIMS) automatically records each sample with greater precision than an individual could. Therefore, it eliminates human error by recording events and data in real-time and also maintains a data log that's able to navigate both internal and external regulatory audits.

**3. Stores Larger Data Sets**

With a traditional server-based LIMS, storing large data sets securely can be a challenge. And as you may know, modern labs handle tons of data that should be stored for extended periods. This can be too costly to manage using local servers. This poses a significant risk to the security of the data. It also causes operational inefficiencies and lab staff may find that more time is spent fixing errors than doing the actual work.

**4. Accelerates Deployment**

Cloud solutions allow LIMS to be deployed almost immediately. Once you make the purchase, all you will need is a URL from the vendor and unique login credentials for each staff member! This eliminates the need for installing servers or peripherals. With a cloud-based LIMS, all your data is stored and managed on external cloud-hosted servers.

**5. Reduces IT Infrastructure Costs**

Infrastructure costs for IT can be overwhelming. This includes purchasing hardware that requires further technical expertise to manage over time. Cloud hosting eliminates all this and therefore minimizes your start-up costs and maintenance costs.

**6. Enables Real-Time Access**

Cloud storage ensures that the data can be accessed remotely from anywhere, and at any time. These have several benefits. First, information can be acted upon immediately. For clinical labs, this speeds up the treatment process and may provide better outcomes.

Remote access also enables easy collaboration with other members of the team. This could be lab personnel, researchers, or even regulatory authorities. Anyone with an Internet connection and access to the LIMS will be able to access the data from anywhere in the world and at any time.

**7. Provides Automatic Updates**

Cloud-based LIMS providers have the incentive to have their customers on the latest version of the LIMS. Consequently, most providers offer automatic updates at no extra cost.

**8. Enhanced Security**

A cloud-based LIMS comes with in-built data encryption and other data integrity regulations. The LIMS vendor has the responsibility of providing control, authentication, and security. Purchasing a LIMS has an attached cost to it. However, not having one is much more expensive as you will be missing out on opportunities

**5 LIMS Security Factors to Consider**

Read the Blog

to reduce inefficiencies and increase productivity. A LIMS automates your workflows and hence greater productivity can be achieved. Without this, your lab may be crippled by larger workloads. This may also mean that you hire more staff over time and this increases your labor costs. The net result will be poor customer satisfaction which may translate to financial losses.

## Conclusion

It must have been at least two hours since you picked up this LIMS buyer's guide. We're glad that you've come this far and optimistic that you have acquired the knowledge to guide you through the purchase of a LIMS. At the start of the guide, we introduced LIMS and the important role that it plays in laboratories. We also mentioned the need of appointing a LIMS champion to run with the vision of purchasing a new LIMS.

We dedicated a lot of time to discussing the LIMS Requirements Document (LRD) in terms of what it is, why it's important, and how to create one. We moved to the pros and cons of taking the help of a consultant when purchasing a LIMS. Both sides should be looked at objectively before a decision is made.

The total cost of a LIMS is influenced by several factors. But first you will need to determine a suitable platform for the LIMS; open source, Software as a Service (SaaS), or Platform as a Service (PaaS). The main costs involved in purchasing a LIMS include software licenses, hardware, optional modules, implementation costs, customization costs, staff training, and support services.

We also discussed the different stakeholders involved in purchasing a LIMS. They include the senior management team, IT personnel, budget committee, lab staff, quality assurance managers, scientists and data analysts, compliance managers, and the customers whose interests must be protected by everyone.

The LIMS buyer's guide outlines the process of finding the right LIMS vendor which starts with knowing where to find them; Google search, review sites, and trade expos. We discussed using customer reference and user groups to evaluate

different vendors and then set up the first meeting with them. After this meeting, the vendor should organize a demo at the customer's premises. LIMS software falls under four categories: bespoke, in-house written, pretend LIMS, and genuine LIMS. We moved to placing the order with the vendor, implementing the LIMS, and finally going live.

From the issues discussed, it was apparent that a LIMS presents several benefits for laboratories. It was also apparent that a cloud-based LIMS has added advantages over a traditional LIMS. All in all, the needs of your lab are unique and hence the need to go with the LIMS that best meets your requirements. Thanks for holding on to the end. For your patience, we hope that your next LIMS purchase will be a huge success.

**Book a Demo**