astrix
TECHNOLOGY GROUP

2019
LIMS
Market
Research
Survey
Report

Introduction

Modern scientific laboratories are experiencing an unprecedented convergence of elevated business expectations, dramatic advances in science and technology, and increased data volume and complexity. In order to navigate all these factors and remain competitive, industry-leading organizations are implementing configurable laboratory information management systems (LIMS) to provide effective data management, maintain regulatory compliance and accelerate innovation.

While LIMS were originally designed to simply track samples and control workflows in regulated environments, recent years have seen a dramatic expansion of LIMS capabilities outside of the traditional laboratory workflows. These days, LIMS functionality has evolved into something more like an "enterprise resource planning tool" with capabilities that can manage multiple aspects of operations across the full data lifecycle – data and assay management, complex integrations, case-centric clinical data, and data mining and analysis.

Today's best-in-class LIMS readily integrate with many different types of instruments, applications, databases and enterprise systems to help facilitate digital continuity throughout the organization. A properly configured and implemented LIMS has the potential to eliminate data siloes and serve as the foundation of a company's overall digital transformation strategy. That said, not all organizations have implemented a LIMS, and for those that have, many still struggle with disconnected, legacy systems that limit their ability to properly manage and extract valuable insights from their data.

Today's best-in-class LIMS readily integrate with many different types of instruments, applications, databases and enterprise systems to help facilitate digital continuity throughout the organization.

In order to better understand the issues surrounding LIMS deployments and serve our customers more effectively, Astrix Technology Group conducts an annual survey to gather information about LIMS deployments from professionals in companies with scientific laboratories. This year's survey was completed by professionals across a wide variety of industries: Biotech/Pharma, CRO/CMO, Consumer Products, Chemicals/Energy, Diagnostics/Medical Device, Food and Beverage, and others.

Our survey confirmed that most organizations have implemented a LIMS, with nearly 75% of respondents indicating that their laboratory had at least one LIMS deployed across their enterprise. Unfortunately, over 30% of those who indicated that their laboratory had a LIMS reported that they were not satisfied with their system and that it was cumbersome to use, indicating that a significant number of organizations had not utilized a successful implementation methodology. Even more concerning, nearly 50% of those indicating their laboratory had implemented a LIMS reported that it actually decreased operational efficiency or had a neutral effect.

At the same time, our survey showed that many organizations are in fact receiving significant benefits from their LIMS deployment. 90% of respondents shared that their LIMS either strongly or moderately improved data integrity in their laboratory, for example. To gain more insights into factors affecting both successful and unsuccessful LIMS deployments, read on....
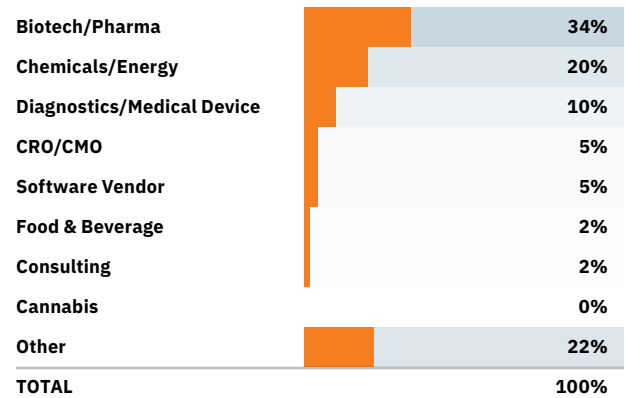
About the Survey Respondents

This report is based on a survey conducted by Astrix Technology Group from late January through mid-February 2020. The survey was completed by professionals from a wide variety of industries, with 34% being from Biotech/Pharma and 20% being from the Chemicals/Energy sector. 26% of the respondents were LIMS Administrators, with 51% of companies surveyed having more than 500 employees.

1 Industries represented

Survey respondents were well distributed across several different industries, with the Biotech/Pharma and Chemicals/Energy sectors representing over 50% of companies surveyed.

Biotech/Pharma	**34%**
Chemicals/Energy	**20%**
Diagnostics/Medical Device	**10%**
CRO/CMO	**5%**
Software Vendor	**5%**
Food & Beverage	**2%**
Consulting	**2%**
Cannabis	**0%**
Other	**22%**
TOTAL	**100%**

2 Size of companies

Over half of the respondents were from companies with greater than 500 employees.

<500	**49%**
500-1,000	**9%**
1,001-10,000	**26%**
10,000+	**16%**
TOTAL	**100%**

3 Job function of respondents

26% of survey respondents were LIMS Administrators.

LIMS Administrator	**26%**
IT Management	**19%**
Lab Manager	**14%**
LIMS User	**9%**
Other	**32%**
TOTAL	**100%**
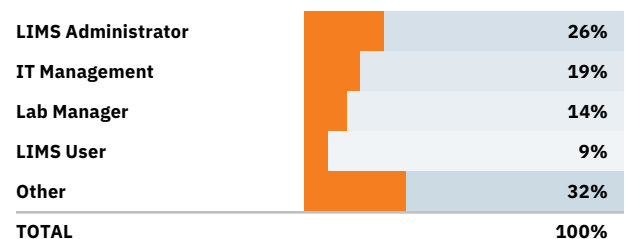
The Current State LIMS Environment

75% of companies surveyed reported a LIMS had been deployed in their laboratories. Over 30% of users indicated that they were not satisfied with their LIMS, with only 53% sharing that their LIMS effectively improved laboratory efficiency. In addition, of those reporting a LIMS deployment at their company:

- 20% indicated that their system does not promote data integrity effectively.
- 36% felt their system was not sufficiently integrated with other systems/instruments.
- 71% shared that their LIMS was either moderately or highly customized.

Of particular interest was the fact that 35% of respondents who indicated a LIMS deployment at their company said that system requirements were not the most important factor in selecting their LIMS – a fact that likely explains why over 30% of respondents were not happy with their LIMS.

4 How many companies are using a LIMS?

75% of companies surveyed have deployed a LIMS in their laboratories.

Yes	75%
No, but planning to	16%
No, and no plan to	9%
TOTAL	**100%**

5 How many users regularly access the LIMS?

For those companies reporting a LIMS deployment, nearly 40% have over 50 people regularly using the LIMS.

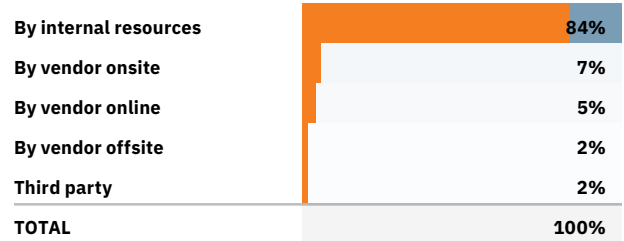|	
1-10	21%
11-25	10%
26-50	29%
50+	40%
TOTAL	**100%**

6 Do companies have IT departments that support laboratory systems?

Most of the companies surveyed have some level of IT support available to support laboratory systems.

Yes	29%
Yes, but limited	56%
No	8%
Don't know	7%
TOTAL	**100%**

7 How are new users being trained on the LIMS?

Internal resources are by far the most common method for training new users on a LIMS.

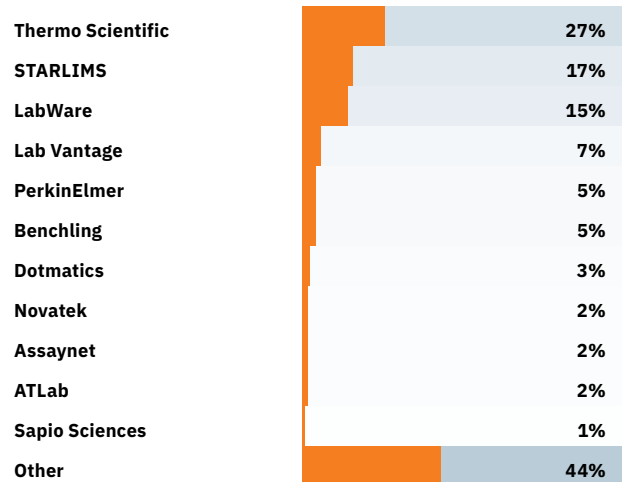|	
By internal resources	84%
By vendor onsite	7%
By vendor online	5%
By vendor offsite	2%
Third party	2%
TOTAL	**100%**

8 For organizations reporting a LIMS, how many were deployed across the enterprise?

Nearly a quarter of companies reporting a LIMS installation had 3 or more LIMS deployed across the enterprise.

1-2	63%
3-5	21%
6-10	2%
Don't know	14%
TOTAL	**100%**

9 Which LIMS were installed at the companies responding to the survey?

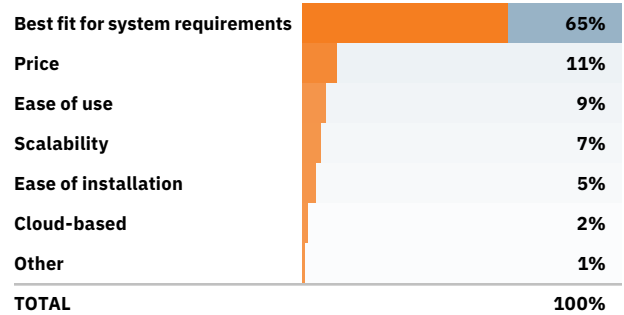|	
Thermo Scientific	27%
STARLIMS	17%
LabWare	15%
Lab Vantage	7%
PerkinElmer	5%
Benchling	5%
Dotmatics	3%
Novatek	2%
Assaynet	2%
ATLab	2%
Sapio Sciences	1%
Other	44%

10 How were the LIMS installed?

Of the companies reporting a LIMS deployment, two-thirds utilized internal IT resources during installation. Many companies reported using a combination of resources to install their LIMS.

Internal IT resources	67%
Informatics Consultant	15%
Vendor Services	48%
Don't know	10%

11 Top factors considered during the selection of LIMS?

65% of companies reporting a LIMS deployment indicated that "best fit for system requirements" was the most important consideration in selecting their system. Interestingly, the fact that 35% indicated this factor was not an important consideration in their LIMS selection process is consistent with over 30% of respondents also reporting they were not satisfied with their system.

Best fit for system requirements	65%
Price	11%
Ease of use	9%
Scalability	7%
Ease of installation	5%
Cloud-based	2%
Other	1%
TOTAL	**100%**

12 How satisfied are users with their LIMS?

31% of respondents reporting a LIMS indicated that they were not satisfied with their system.

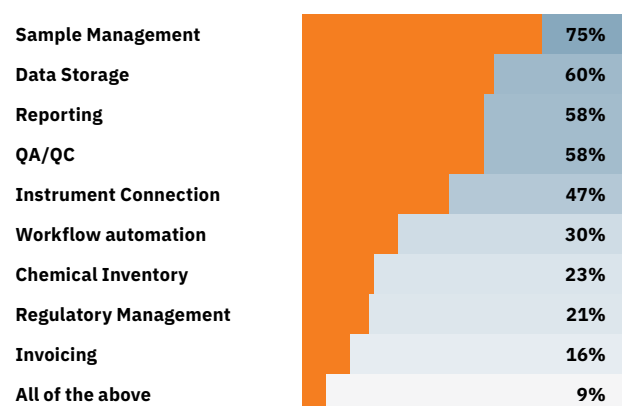|	
Very satisfied	20%
It's OK, gets the job done	49%
Not satisfied, difficult to use	31%
TOTAL	**100%**
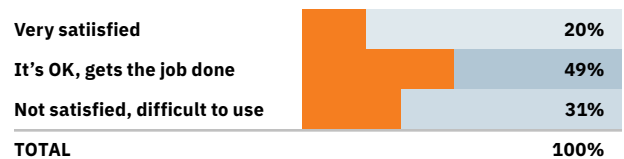
13 How are LIMS deployments affecting laboratory efficiency?

53% of respondents reporting a LIMS deployment felt it improved work efficiency in their laboratory.

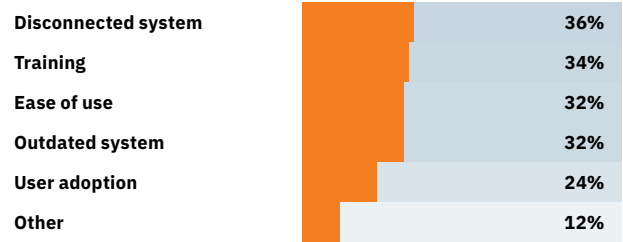|	
Increased efficiency	53%
Decreased efficiency	14%
Neutral effect	33%
TOTAL	**100%**

14 How are LIMS being used?

75% of respondents reporting a LIMS deployment indicated that sample management was a primary reason they used their LIMS.

Sample Management	75%
Data Storage	60%
Reporting	58%
QA/QC	58%
Instrument Connection	47%
Workflow automation	30%
Chemical Inventory	23%
Regulatory Management	21%
Invoicing	16%
All of the above	9%

15 What are the biggest challenges in using LIMS?

36% of respondents reporting a LIMS deployment indicated the system was not sufficiently integrated.

Disconnected system	36%
Training	34%
Ease of use	32%
Outdated system	32%
User adoption	24%
Other	12%

16 How well are LIMS integrated with instruments and devices?

Nearly 30% of respondents reporting a LIMS deployment indicated that their system was not integrated with instruments and devices.

Very well integrated	5%
Moderately integrated	64%
Not integrated	29%
Don't know	2%
TOTAL	**100%**

17 How well are LIMS integrated with other software applications?

34% of respondents reporting a LIMS deployment indicated that their system was not integrated with other software applications.
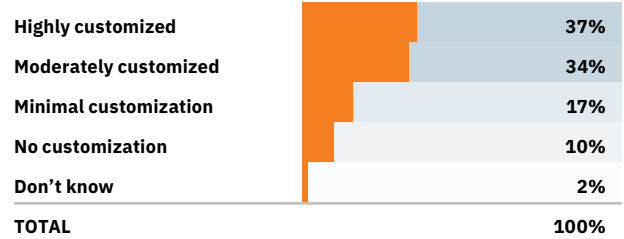
Very well integrated	5%
Moderately integrated	59%
Not integrated	34%
Don't know	2%
TOTAL	**100%**

18 How are LIMS installed?

The most frequent installation architecture reported for LIMS was thin client/server, followed by web-based.

Thin client/server	44%
Web	32%
Thick client/server	24%
Cloud	20%
Other	10%

19 How customized are LIMS deployments?

71% of respondents reporting a LIMS deployment indicated that their system was either highly or moderately customized.

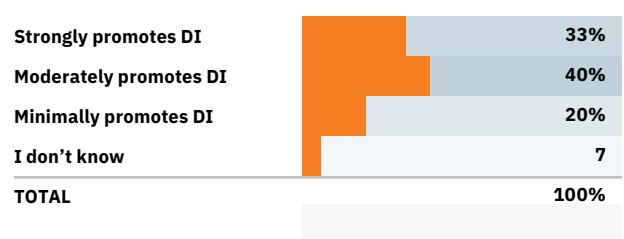|	
Highly customized	37%
Moderately customized	34%
Minimal customization	17%
No customization	10%
Don't know	2%
TOTAL	**100%**

20 Are LIMS validated to the satisfaction of regulatory agencies?

Nearly half of those respondents reporting a LIMS deployment felt their LIMS had been validated to the satisfaction of regulatory agencies.

Yes	49%
No	24%
Don't Know	7%
Not applicable	20%
TOTAL	**100%**

21 How well do LIMS deployments address data integrity?

20% of respondents reporting a LIMS deployment indicated that their system does not promote data integrity (DI) effectively.

Strongly promotes DI	33%
Moderately promotes DI	40%
Minimally promotes DI	20%
I don't know	7
TOTAL	**100%**

22 Do companies use a managed services model to support their LIMS?

While most companies are not currently using a managed services model to support their LIMS, nearly a quarter of respondents reporting a LIMS deployment were interested in learning more.

No	57%
Yes	20%
No, but tell me more	23%
TOTAL	**100%**

Early Stage Strategic Planning

Strategic planning is absolutely critical to the success of any LIMS implementation. Our survey showed that somewhere around 30% of the companies reporting a LIMS deployment did not do sufficient strategic planning to ensure a successful implementation.

23 **Did the LIMS implementation team conduct a workflow analysis to develop optimized future-state laboratory workflows prior to selecting the LIMS?**

Yes	65%
No	28%
Don't know	7%
TOTAL	**100%**

24 **Did the implementation team develop system requirements prior to selecting the current LIMS?**

Yes	67%
No	26%
Don't know	7%
TOTAL	**100%**

Future Plans

A significant majority of companies surveyed are planning to upgrade or add functionality to their LIMS, with nearly half reporting they plan to purchase a LIMS in the future.
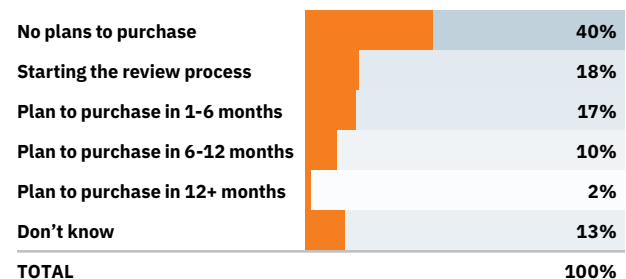
25 **Are companies planning to upgrade or add functionality to their LIMS?**

Around 85% of companies reporting a LIMS are planning to upgrade or add functionality to their system

Thinking about it	34%
Yes, within next 6 months	29%
Yes, within next 6-12 months	22%
No	15%
TOTAL	**100%**

26 **Are companies planning to purchase a new LIMS?**

Nearly 30% of companies surveyed are planning to purchase a new LIMS.

No plans to purchase	40%
Starting the review process	18%
Plan to purchase in 1-6 months	17%
Plan to purchase in 6-12 months	10%
Plan to purchase in 12+ months	2%
Don't know	13%
TOTAL	**100%**

Conclusion

LIMS projects usually demand a substantial investment of time, money and resources, with implementations costing hundreds of thousands to millions of dollars and requiring hundreds of person days to implement. Failure of a LIMS project can be a huge waste of time and resources, and a financial disaster for the organization involved. As such, it is critical to get a LIMS implementation project right the first time in order to capitalize on the potential to transform your laboratory operations and preserve your return on investment.

Our survey showed that a significant percentage of LIMS implementations still do not meet an important requirement of success – user satisfaction. 31% of our survey respondents reported that they were not satisfied with their LIMS and that it was cumbersome to use. Our survey provides some significant hints on why this was the case. Of respondents who indicated that their organization had a LIMS:

- **35% did not list "best fit for system requirements" as an important factor in selecting their LIMS**

- **28% reported that their organization did not perform a workflow analysis or develop optimized future-state workflows as part of their LIMS selection process**

- **26% reported that their organization did not develop system requirements prior to LIMS selection**

One of the biggest mistakes companies make when starting an informatics project is to not do the strategic planning necessary to ensure success. Many organizations try to select and implement a system without first performing the due diligence required to align laboratory functional needs with the strategic needs of the business – an error that is magnified if more than one site is involved. Towards this end, the first step in any laboratory informatics project should always be a thorough workflow and business analysis.

Our survey also revealed other problems in LIMS deployments:

- **Only 20% of respondents indicating a LIMS deployment felt their LIMS strongly promoted data integrity**

- **A significant number or respondents said that their LIMS was not effectively integrated with instruments/devices (29%) and other software systems (34%)**

- **14% indicted that their LIMS actually decreased laboratory efficiency**

Notably, 47% of respondents indicating a LIMS deployment said their organization was considering or planning to purchase a new system. One must ask: could problems in their current LIMS be improved to meet requirements, allowing them to avoid the costly process of purchasing and implementing a brand-new system?

Another area of interest was the fact that 71% of respondents reporting a LIMS deployment indicated that their LIMS was either highly or moderately customized, yet 85% said that their company planned or was considering upgrading or adding functionality to their LIMS in the near future. Additionally, 24% indicated that their LIMS was not validated to the satisfaction of regulatory agencies. It is important to note that version upgrades and system validation can be very time-consuming and challenging in highly customized LIMS.

Finally, while this survey revealed that some organizations have work to do to in order to get their LIMS to the point where it meets their requirements, it also confirmed that many organizations were in fact receiving significant benefits from their LIMS deployment. Properly selecting and implementing a LIMS is one of the most important activities an organization can take to improve business value in the laboratory. We hope that this LIMS Market Research Report helped to highlight some of the potential pitfalls in LIMS implementations, and ultimately assists your organization in fulfilling the promise and maximizing the ROI of this important technology in your laboratory.

About Us

Scientific resources and technology solutions delivered on demand

Astrix Technology Group is an informatics consulting, professional services and staffing company dedicated to servicing the scientific community for over 20 years. We shape our clients' future, combining deep scientific insight with the understanding of how technology and people will impact the scientific industries. Our focus on issues related to value engineered solutions, on demand resource and domain requirements, flexible and scalable operating and business models helps our clients find future value and growth in scientific domains.

Whether focused on strategies for Laboratories, IT or Staffing, Astrix has the people, skills and experience to effectively shape client value. Leveraging our deep industry experience, we offer highly objective points of view on Enterprise Informatics, Laboratory Operations, Healthcare IT and Scientific Staffing with an emphasis on business and technology. Visit astrixinc.com for more information.

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