LabVantage®

THE CASE FOR A PURPOSE-BUILT LABORATORY INFORMATICS SYSTEM

Positioning Your Oil and Gas Testing Lab for Success

FROM THE EXPERTS

According to Michael Shanler, Analyst, Gartner, "If the situation presents itself, take the opportunity to reduce the footprint of legacy ELN and LIMS systems, consolidate them into one system that is more suitable for expansion with the enterprise, and extend it to collaborators and supply chain partners."[1]

– Gartner

WHY A PURPOSE-BUILT LIMS?

The Data Management Challenge

A successful lab is more than a scientific hub. In today's age, it's a digital data enterprise. An oil and gas lab managing hundreds of concurrent tests, a food and beverage lab tracking incubation in real time, a cannabis lab with a vast and complex inventory of samples – it's all data. And it grows exponentially day by day, week by week, creating an urgent need for an integrated informatics platform where that data can be securely and efficiently stored, retrieved, and analyzed.

But should that platform be one-size-fits-all across industries? A pharma lab needs regulatory documentation, while a diagnostics lab requires advanced tracking of biospecimens. Traditionally, each would begin with the same basic building blocks: a Laboratory Information Management System (LIMS) with standalone point solutions such as an Electronic Laboratory Notebook (ELN) or a Laboratory Execution System (LES) daisy-chained together to approximate an end-to-end solution. Then, through a complex à-la-carte development and validation process, each of these labs would customize their platform in response to their divergent needs. Repeated for every organization, across every industry, this bulky deployment process represents an enormous amount of cost and effort, and a considerable degree of risk.

Until now.

The Case for a Pre-Configured, Fully Integrated Solution

A purpose-built LIMS, with the option to embed ELN, LES, and other modules, leapfrogs the lengthy customization process. Because your industry's best-established workflows and operating procedures determine its functionality, your platform is configured to meet your needs before you've even begun. The advantages of this accelerated start are numerous and notable.

1. Save Time

A pre-configured LIMS can deploy up to 75% faster than a more typical LIMS system. Its purposeful functionality reinforces a consistent, industry-standard workflow to help your lab achieve greater efficiency and productivity.

2. Save Money

Faster deployment and improved functional efficiencies translate to significant cost savings. Abandoning stand-alone ELN and LES products and other point solutions in favor of pre-packaged, fully embedded modular capabilities in one streamlined platform will help you maximize your return over time.

3. Reduce Risk

A purpose-built LIMS reflects industry best practices and the latest regulatory and compliance developments within your industry. As a result, it eliminates the need for custom code and reduces the overall configuration effort, thereby lowering the risk inherent with other LIMS projects.

4. Stay Focused

Lab managers can conceal or disable non-essential functionality in the purpose-built LIMS. The result is a user experience that's responsive not just to your industry, but also to the specific needs and use cases of your front-line staff. That means less training time, greater productivity, and better quality overall.

5. Future-Proof Your Business

Industry regulations and conditions change over time, and your lab will likely change too – you may add new service areas, new tests, or new users as you grow. A modular, purpose-built LIMS that makes use of industry-standard web technology can expand with you, from startup labs through global operations, without the prohibitive time, cost, and compliance issues of specialized coding.

Built Better for the Oil and Gas Industry

To run efficiently and manufacture products with the highest possible quality, petro-chemical refineries require a purpose-built solution.

Managers and analysts in oil and gas labs need a top-to-bottom picture of every material throughout its lifecycle, from crude oil to finished product. They need data telling them what tests were done, how often, and at what point in the refining process; they need to be able to merge, segregate, and visualize that data in order to understand how one processing plant is performing compared to another, or to detect and correct aberrations in temperature, pressure, and other environmental factors. They need to ensure compliance with increasingly stringent regulations, such as evolving standards for the control of smog-producing chemicals like sulfur. And they need to do all of that efficiently, with no shutdowns, and without repeating costly tests unnecessarily.

LabVantage Oil and Gas is built for these labs. It's pre-configured to work precisely the way petrochemical refineries work, without the non-essential functionality included in standard LIMS deployments. It's fast to implement, cost effective, and designed by experts with decades of experience in the oil and gas industry.

The result is a pre-configured product that helps refineries to:

Optimize Efficiency by Closely Tracking Samples From Start to Finish

LabVantage Oil and Gas features end-to-end sample collection and management tools such as:

- Statistical Process Control (SPC) based on Westgard rules, providing an analysis of trending data to help predict and prevent errors at every sample collection point.

- Sample monitoring featuring hot-spot visualizations, hierarchical definitions of collection sites, and automated test scheduling across locations and business units.
- Reports and dashboards designed to integrate or segregate data as needed, including the option to interface with data historians such as OSI PI.
- A centralized web-based deployment with permission controls for hundreds of concurrent users, providing a single source of truth for inquiries and insights.

DESIGNED FOR RAPID IMPLEMENTATION AND SELF-DETERMINED FUNCTIONALITY

LabVantage Oil and Gas is built from the enterprise-level LabVantage LIMS solution. Its implementation is fast and cost-effective because non-essential functions from the enterprise solution are hidden or turned off, narrowing its users' focus to those activities that are most common to typical refinery operations.

But the "parent" LIMS and its many functions are always available and can be turned on and configured based on specific use cases. For example, a refinery that requires different CoAs for the same product can add that functionality to their purpose-built LIMS. This allows for a scalable and highly configurable solution that evolves and adapts according to its users' needs.

Accelerate Production With Built-In, Ready-to-Use Petrochemical Testing Methods

LabVantage Oil and Gas is pre-populated with the most common ASTM test methods. This helps to expedite the LIMS implementation process, saving significant time and money and giving chemists, analysts, and other users faster access to the support they need for an efficient, quality-driven workflow. A few of the built-in methods include:

- Multi-element Analysis of Crude Oils Using Inductively Coupled Plasma Atomic Emission Spectrometry (ASTM D7691 – 16)
- Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence (ASTM D5504 – 12)
- Determination of Benzene and Toluene in Finished Motor and Aviation Gasoline by Gas Chromatography (ASTM D3606 – 10)
- +13 other commonly required ASTM methods for petrochemical operations

To ensure that these methods are applied correctly and that they generate valid test results, the system tracks both users and instrumentation, allowing only those with proper qualifications and/or certifications to proceed.

Maximize Commercial Value by Matching Fuel Grade to Customer Specifications

The purpose-built LIMS maintains a library of customers' unique specifications, allowing manufacturers to pivot a product from one intended customer to another with the appropriate CoAs. A particular grade of aviation fuel intended for Customer A may also meet specifications defined by Customer B, for example; the system works alongside business operators to find the best possible market for finished product and prevent the risk of issuing a product to the wrong customer.

Avoid Regulatory Penalties with Compliant-Ready Software

The system is configured to ensure compliance with ISO 17025, 21 CFR 11, Annex 11, and GxP, as well as EPA protocols. State-specific regulations are likewise included, such as California's particular standards for air quality control, as well as specifications for seasonal blends.

Safely Track, Store, and Label Hazardous Material

The system includes modules designed to generate Safety Data Sheets (SDS), helping users instantly identify flammable, explosive, or otherwise hazardous materials. Internationally recognized pictograms for hazardous materials are also available from within the system, ready to print and apply to product labels.

The Accelerated Implementation Experience

Choosing a purpose-built LIMS is like strapping a rocket booster to the implementation process. It means much of the background work is complete before you even begin, giving you a head start without sacrificing consistency, compliance, or performance.

Here's how the LabVantage implementation process compares to a typical implementation experience.

A Typical LIMS Implementation	LabVantage LIMS Implementation
Minimum 12 months to deploy	*Deploys in as few as three months*
A massive up-front investment drives this deployment process, which begins with a detailed discovery and documentation of user needs and progresses through multiple design iterations and testing phases. Heavily customized and configured systems introduce risk and its corresponding compliance requirements, necessitating a significant investment in validation and test planning. Once fully customized and compliant, the system is ready for use – but only after a significant investment in training for all users and administrators. Training timelines are contingent on the complexity of customization and are often a significant factor in typical deployment costs. When updates are required after deployment, the vendor must be involved for specialized customization and/or installation, further adding to the costs and time required to maintain performance.	Because this system is already configured for your industry using established industry best practices, the implementation process is much more efficient. Data templates are integrated and the products and functions most commonly relied upon by industry-specific users are engaged and ready. If further configuration is required, the system's modular design is easily adaptable without code; ongoing updates and enhancements require no specialized skill or outside management.

Run Your Digital Enterprise with LabVantage

Across industries, every successful laboratory functions at the nexus of talent and technology: the right people using the best, most streamlined tools. And as the market's leader in modern and efficient LIMS solutions, LabVantage is essential to that winning formula. Here's why.

The Best and Most Secure Technology in the Industry

Our feature-rich LIMS is completely web-hosted, giving networked users access to the same information from one secure, easy-to-use system – whether they are in the same lab or across the world. Hosted on-premise or in the cloud, the system also connects labs with third-party contributors outside of their firewall, like manufacturing partners or research organizations, allowing for harmonized data input through a single platform.

A System That Adapts to Your Needs – Without Code

Our purpose-built LIMS features a modular design that invites further configuration and adaptation without specialized coding skills. Users can configure their platform themselves or rely on our global professional services team to do it; both scenarios reduce the cost, effort, and complexity of additional testing and compliance.

A Fully Interoperable Experience From Start to Finish

No more siloed informatics systems for individual use cases within a product life cycle. Our system interconnects your processes within a single, central hub, meaning that documentation generated during early R&D explorations is consistent throughout manufacturing and final quality assurance testing. The result is a more efficient lab with fewer opportunities for risk, leading to a stronger business performance overall.

A Professional Support Team in Lockstep With Your Needs

From deployment through validation and ongoing monitoring, our global professional services team of solution engineers, business analysts, and project managers offer consistent and top-rated support services. We seek to become more *partner* than *vendor* through our managed services offering; for example, our team will regularly monitor, optimize, administrate, and enhance your system, giving you greater confidence and more control over your IT and labor costs.

Conclusion

LabVantage Oil and Gas helps petrochemical refineries operate at maximum possible efficiency.

Enhance your oil and gas refinery with the full-featured, entirely web-based informatics platform designed specifically for success in your industry.

TAKE ADVANTAGE of LabVantage Oil and Gas at LabVantage.com/oilandgas

REFERENCES

[1] Gartner, "Hype Cycle for Life Sciences, 2018", Published 25 July 2018, Analyst(s): Stephen Davies, Michael Shanler, Jeff Smith

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ABOUT LABVANTAGE SOLUTIONS

LabVantage is the recognized leader of enterprise laboratory software solutions with over 35 years of experience. We deliver an integrated laboratory informatics platform including laboratory information management systems (LIMS), electronic laboratory notebooks (ELN), and laboratory execution systems (LES). We support more than 1500 customer sites in the life science, pharmaceutical, medical device, biobank, food & beverage, consumer packaged goods, oil & gas, genetics/diagnostics, and healthcare industries. Headquartered in Somerset, N.J., LabVantage offers a comprehensive portfolio of products and services that enable companies to innovate faster in the R&D cycle, improve manufactured product quality, achieve accurate record-keeping, and comply with regulatory requirements. The LabVantage integrated LIMS/ELN/LES platform is highly configurable, purpose-built, and 100% web browser-based to support hundreds of concurrent users and seamlessly interface with instruments and other enterprise systems.

For more information, visit www.labvantage.com.