

Follow the Data to Grow

WHY A SCIENTIFIC DATA PLATFORM IS ESSENTIAL



In this white paper, learn how a platform approach to scientific data management, including semantic search, advanced analytics, and lab automation, leads to better enterprise decisions at the executive level, optimized lab performance, more discoveries, and stronger product pipelines.

Your Labs are the Source of Innovation and Growth

Innovation is the engine that powers a company's growth and product development, and for enterprises with R&D laboratories, those lab environments are the greatest source of this innovation. Yet traditional laboratory software solutions—designed to manage workflows—are now inadequate to address today's challenge: enterprise data flows. How the abundance of data moves through the enterprise to aid in decision-making is central to organizational success.

If right now you're struggling to find value in an explosion of data, or to maximize investments in artificial intelligence (AI) and data science, it's time to shift to a scientific data management platform as part of your digital ecosystem.

Integrating laboratory environments with the enterprise ecosystem leverages the sprawling data lakes that labs generate. As labs move from isolated islands within organizations to become strategic assets embedded in the data ecosystem, a digitally native platform approach to scientific data flow management makes this transition easier.

Maximizing Scientific Data in Business Decision-Making

A comprehensive scientific data management platform—spanning R&D labs through to QA/QC manufacturing with portals to supply chain partners—best serves organizations and their digital transformations as they maximize use of scientific data in business decision-making. Unlike siloed software, a digitally native scientific data management platform creates fully connected AI-enabled digital labs, exploits organizational and other data, and creates an enterprise-wide data flow that informs the full product lifecycle—from concept to commercialization.

Whether you're making drugs, industrial chemicals, fuel, or food, an integrated scientific data management platform optimizes lab performance and analytics for greater insights and intelligent decision-making, leading to enterprise growth and innovation.

“The notion of individual applications running individual pieces of your end-to-end lab scheme, from R&D to QC, definitely seems to be coming to an end. More and more, customers want a platform play that can energize their data.”

ALAN MARCUS, Chief Growth Officer, LabVantage

SAAS DELIVERY

LabVantage [SaaS LIMS](#) helps businesses:

- Reduce risk by improved data security, privacy, and regulatory compliance
- Adapt to remote data management, in response to the growth of work-from-home culture
- Lower capital costs of cumbersome hardware and on-premises IT infrastructure
- Stay up-to-date on latest releases while avoiding disruptive product upgrades

The Drawbacks of Siloed Informatics

Traditionally, laboratory information is isolated in standalone solutions, creating challenges for lab staff to find, access, interoperate/aggregate, or reuse data, while also limiting its ability to enhance business processes across multiple systems or supply chain partners.

Organizational data lakes are treasure troves for researchers working to expand product life cycles, make new discoveries, or find more efficient methods of manufacturing goods. When data is locked away and inaccessible to all who could benefit from it, researchers remain unaware of institutional IP, spend time and resources repeating experiments, or stitch together disparate data from multiple software applications to begin to see a picture. QA scientists, meanwhile, don't have access to the development data that could better inform quality attributes and the manufacturing process. The result is more time spent on tedious, time-consuming, low-value work, rather than high-value discovery or optimization.

Business leaders, meanwhile, have near-zero visibility into the discoveries and pipelines accumulating in their labs, or to the analytical insights that could drive decisions on investments. Reducing data fragmentation and deploying dashboards and other visualization tools enables executives to evaluate, validate, and analyze disparate data sources.

Achieving a Seamless Data Flow

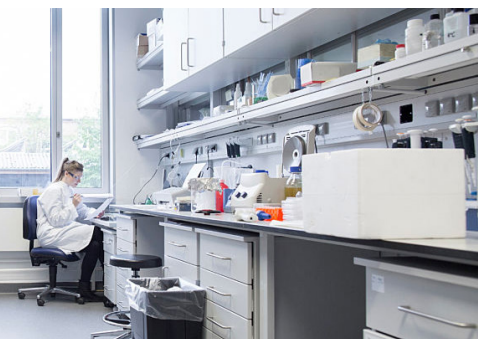
As organizations big and small undertake digital transformations with a goal of increasing productivity and efficiency, and reducing costs while innovating, industry observers like Frost & Sullivan¹ argue that a platform approach to lab informatics arises as a solution. According to Frost & Sullivan's Frost Radar™ report on LIMS for the life sciences, “Users expect more from vendors, and vendors want to become end-to-end lab informatics solution providers rather than simply offering traditional laboratory information management systems [LIMS].”

Today's sophisticated LIMS incorporate significantly greater capabilities, such as electronic lab notebooks (ELN), lab execution systems (LES), and scientific data management systems (SDMS). But even that is not enough to meet the needs of today's business processes. Frost & Sullivan finds customers are seeking even more from these lab solutions—and encourages industry partnerships to strengthen platforms with artificial intelligence, natural language processing, and machine learning. Such features “would allow researchers and labs to better manage their data and extract insights at a faster pace to save time,” Frost & Sullivan reports, projecting AI integrations with LIMS will increase “over the next few years.”

There is increasing interest in this type of integration, with corporations choosing to reduce the number of different data management solutions used enterprise-wide in favor of standardized or harmonized scientific data platforms that integrate with other enterprise solutions.

For CEOs, having laboratory data integrated into the enterprise digital ecosystem, enabling data flow management, means their business can move faster to market with a better pipeline, meeting customer needs, and reducing costs. The business case for a platform approach can be found in several areas:

- **Regulatory Compliance** For regulated industries, like pharmaceuticals, automated compliance workflows ensure data integrity and audit trails, improving product quality and reducing failure rate.
- **Security and Privacy Risk** All data traffic is secure, protecting your business and customer privacy from cyber attacks, data integrity issues, and other concerns.



- **Efficiency and Productivity** Eliminating data silos, facilitating smooth data exchange and collaboration across cross-functional teams throughout the enterprise leads to more discoveries, stronger product pipelines, less repeat work, and better adherence to quality parameters. Transitions from time-consuming low-value work to high-value science—whether in a single lab or facilities across the globe—significantly boosts productivity.
- **Insights with AI** Integration enhances data analysis, modeling, and predictions, allowing robust comparisons of different experiments, deeper scientific insights, and faster discovery.
- **Interoperability and Standardization** Ensuring data interoperability, by adhering to standardized data formats and protocols, makes it easier for data to be exchanged and used across different platforms, software, and multidisciplines.

Take Advantage of the LabVantage Scientific Data Management Platform

LabVantage pioneered one of the first laboratory informatics platforms, incorporating into its LIMS an ELN for flexible R&D, an LES for compliant workflows, and an SDMS for automated data capture.

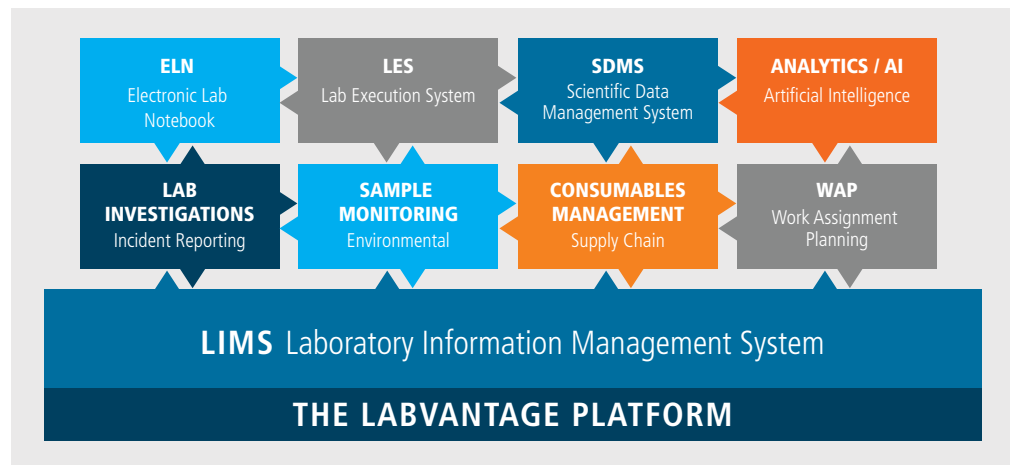
With capabilities further expanded to handle lab investigations, sample monitoring, consumables management, and work assignment planning, the platform serves as the hub of all labs across the organization and as a resource across the business.

LabVantage's addition of AI-aided semantic search and advanced analytics resulted in a digitally native ecosystem serving the full product lifecycle, from R&D through commercial manufacturing QA/QC. Managing data flows, as well as workflows, the ecosystem drives improvements in efficiency, productivity, decision-making, collaboration, and, ultimately, time-to-market while reducing operational costs.

Delivered with Software-as-a-Service (SaaS) technology, the complete scientific data platform offers agility and scalability while meeting the FAIR data principles required for knowledge-sharing and collaboration that leads to innovation. This allows scientists working in all lab types, across multisites and geographies, to do their jobs faster, better, and smarter, while business leaders have the visibility to make informed decisions about products, markets, and investments.

UP TO 30% REDUCTION IN REPEAT EXPERIMENTS

Some LabVantage customers have seen a 30% reduction in the unnecessary repetition of experiments once they implemented the LabVantage informatics platform.



LabVantage’s scientific data management platform, which integrates solutions within a single architecture, licensing model, and services contract, provides customers with the flexibility to select and activate specific components, and scale use as needed.



Search, Analyze, Automate

Streamlining R&D and QC to develop a tasty non-alcoholic beer

Competitive advantage is fostered by extending a successful product line to meet continuously evolving customer demands. A great example is the emerging market trend to create a wider selection of non-alcoholic beer. For a food and beverage manufacturer, tweaking an existing recipe—or developing a new one—is tedious and expensive, involving iterative experimentation using extensive combinations of multiple ingredients.

With the LabVantage scientific data management platform, a beer manufacturer leveraged its existing recipe inventory—as well as data from external sources—to predict the optimal formula for an appealing new variety. AI-powered research, exploiting semantic search, AI analytics, and automation, significantly reduced the number of experiments needed to arrive at the desired taste profile.

Once the innovative product is developed, the platform ensures high-quality commercial production. Quality concerns—such as a product sample failure—can be fed directly into the Lab Investigations module to determine the root cause of the failure and an appropriate solution long before the product is shipped to consumers.

The results?

- Less money and time spent on research and experimentation
- Shorter time to market
- Fewer quality concerns and reduced risk

“LabVantage has a best-in-class LIMS solution, which is reflected in its consistent growth and strong portfolio pipeline. It has the potential to set an industry benchmark, given its proven ability to scale continually.”

FROST & SULLIVAN¹

Leading LIMS for Growth and Innovation

According to Frost & Sullivan, which rated LabVantage as the top growth and innovation leader in its LIMS report and radar,¹ there are few vendors offering integration of LIMS with analytics, advanced scientific data management, and enterprise systems beyond the lab. It gave LabVantage high praise for its “comprehensive portfolio” and “commitment to continued innovations.”

Among LabVantage’s innovations, per Frost & Sullivan:

- Application-specific solutions targeting industries and labs with preconfigured workflows, enabling faster deployments
- Internal and external sources of new technologies to strengthen its product portfolio. This includes investments in AI and NLP for handling scientific and unstructured data and the 2022 acquisition of knowledge management software company Biomax Informatics, whose AILANI semantic search solution was recognized in the Gartner® Hype Cycle™ for Life Science Discovery Research 2023 as a Sample Vendor for two categories: ‘Semantic Knowledge Graph Tools’ and ‘Analytics Platforms for Research Informatics.’³



Consumables Management

Optimizing raw materials inventory for \$2 million annual savings

Scientists and lab managers need real-time access to warehouse inventory and stock levels. The components of a digitally native scientific data platform can lead to big savings when multiplied across large enterprises—by identifying waste and automating inventory management. For example, the Consumables Management module identifies expired chemicals, ensuring they are not used in experiments, and tracks ordering and usage to maximize optimal use of materials.

After deploying Consumables Management as part of its LabVantage LIMS platform, a large paint manufacturer reduced the number of expired chemicals at one site by 90%, saving the company more than \$2M annually in wasted chemicals.

Inventory transparency provides opportunities to share chemicals between labs instead of having redundant sources of commonly used reagents. And an expired or bad lot of a chemical can be easily located, identifying every experiment or test it impacted.

Your Roadmap to Better Decisions

Improve data flows from the lab to the boardroom

As leaders planning for your organizations’ growth and innovation, digital transformation is a must. It is no longer enough to leave labs as their own islands, equipped with individual applications that support workflows. It has become a strategic imperative to transition to integrated, digitally native solutions that enhance the data flows across your ecosystem and leverage your lab-centered data lakes. How you get there and who you partner with will be critical to your success. LabVantage attributes our success in helping customers make this journey to our people, processes, and platform.

UP TO 40% MORE PRODUCTIVITY

Industry statistics highlight the impact of digitization and automation, with laboratories reporting up to a 30-40% increase in productivity.²

[See how one client improved productivity with the LabVantage informatics platform.](#)

Bolstered by industry analysts like Frost & Sullivan, this paper makes the case for a scientific data management platform approach to your digital enterprise. Select only the best, most comprehensive and integrative technologies to complete your tech stack and equip your personnel.

But you must look also to the people and processes within your scientific data advisor. If you have global operations, do they? Are they skilled in your industry and have solutions that meet your needs? What assistance can they offer as you evaluate, plan, and implement your transformation? Are they helping you understand and prepare for the change management required with new solutions and processes?

With [significant investments](#) in its Customer Care and Professional Services Organization, LabVantage is uniquely positioned to deliver its modern scientific data platform to global organizations of all sizes and industries, helping customers make smarter data-driven decisions that drive growth and innovation.

TO LEARN MORE about how the LabVantage platform can benefit your business, contact us directly at info@labvantage.com.

REFERENCES

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ABOUT LABVANTAGE SOLUTIONS

A recognized leader in enterprise laboratory software solutions, LabVantage Solutions dedicates itself to improving customer outcomes by transforming data into knowledge. The LabVantage informatics platform is highly configurable, integrated across a common architecture, and 100% browser-based to support hundreds of concurrent users. Deployed on-premise, via the cloud, or SaaS, it seamlessly interfaces with instruments and other enterprise systems – enabling true digital transformation. The platform consists of the most modern laboratory information management system (LIMS) available, integrated electronic laboratory notebook (ELN), laboratory execution system (LES), scientific data management system (SDMS), and our advanced analytics solution (LabVantage Analytics); and for healthcare settings, a laboratory information system (LIS). We support more than 1500 global customer sites in the life sciences, pharmaceutical, medical device, biobank, food & beverage, consumer packaged goods, oil & gas, genetics/diagnostics, and healthcare industries. Headquartered in Somerset, NJ., with global offices, LabVantage has, for four decades, offered its comprehensive portfolio of products and services to enable customers to innovate faster in the R&D cycle, improve manufactured product quality, achieve accurate record-keeping, and comply with regulatory requirements. For more information, visit labvantage.com.

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