



LabVantage LES and ELN

LabVantage Solutions provides a modern laboratory execution system (LES) and electronic lab notebook (ELN) embedded in its LabVantage LIMS platform. LabVantage LES defines and guides flawless conformance to process protocols while LabVantage ELN enables a flexible dynamic for capturing and sharing observations. Together, they enable your digital transformation.

HIGHLIGHTS

- **Embedded lab execution and lab notebook in LIMS environment**
- **Move to paperless notebooks and worksheets**
- **Ensure data integrity from test result to retrieval**
- **Seamlessly access LIMS and SDMS data when innovating in ELN and when enforcing quality testing standards in LES**
- **Capture structured and unstructured data, chemical structures, etc.**

Key Benefits

Increase efficiency through paperless workflow

Digitalization and automated workflows and processes within your LIMS environment control how work gets done while fostering quality and collaboration

Enforce work standards and documentation for QA/QC

Automatic LES form-generation presents standard procedures for each process step, providing visibility and enforcing compliance across the entire workflow

Enable better collaboration for faster innovation

Cross-functional teams innovate faster when they can work seamlessly, share observations, and access LIMS data to test new methods and perform experiments in one ELN

Streamline compliance and secure datasets

Our LES/ELN solutions inherit security, permissions, data access, and audit trails from LabVantage LIMS

Reduce IT costs with an integrated solution

LES and ELN are embedded within the LabVantage LIMS platform, eliminating any need for an API or third-party interface

Work anytime and anywhere

Highly responsive, browser-based solutions that are fully HTML5-compliant, requiring no client-side installation, validation or maintenance

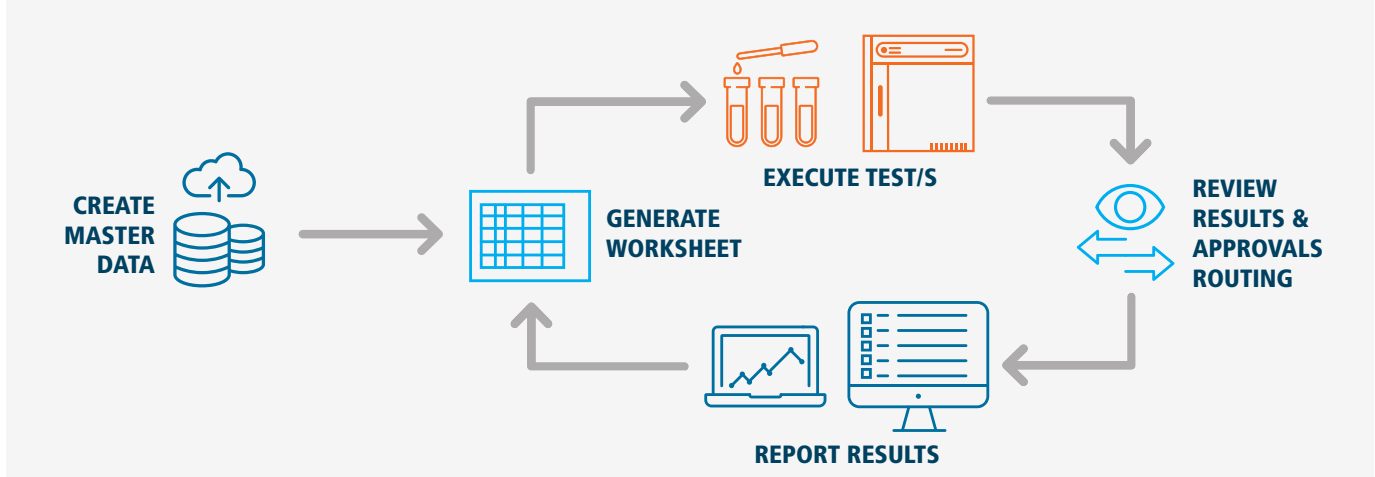
LabVantage Laboratory Execution System (LES)

In manufacturing Quality Control, when a sample test is ordered, LabVantage LES automatically generates an electronic worksheet to guide and enforce each step of the procedure. Lab technicians follow the same protocol and receive identical instructions on use of instruments or handling samples to ensure quality and regulatory compliance.

Results are entered directly into the structured LES form, ensuring data entry is consistent across users.

For lab managers, LabVantage LES provides the tools to create and enforce compliant worksheets, add instructional text, define protocols, and optimize workflows.

LabVantage LIMS with Embedded LES: Enforce Compliance



LabVantage LES enforces quality and regulatory compliance throughout the manufacturing testing workflow.

Laboratory Execution That Flows With Uncompromising Quality

- **Create master data** Testing methods are easily defined in the LIMS and executed in the LES based on standard operating procedures, both upon deployment and as new tests are introduced.
- **Generate test method worksheet** Worksheets follow a template, which can be used to order a test for a single sample or multiple samples.
- **Execute process** Tests are assigned to a lab technician, who is guided through protocols using calibrated instruments and qualified consumables. Worksheet data can be approved for integrity through eSignatures and audit trail compliance.
- **Create oversight** All activities in a procedure are logged and time-stamped; peers and managers can review and approve each step no matter how simple or complex.

- **Generate results and reports** LES shares reporting functionality in LabVantage LIMS to generate certificates, export reports, populate dashboard data, or support business analysts for deeper study.

Increase Productivity by Using Workflow Execution Templates

- Templated workbooks speed your documentation process
- Workbooks are organized into worksheets within sections; optional templates provide standard layouts
- Design options for configurations are included
- Comprehensive reporting, formatting, editing of final reports; export to PDF and Word for publishing

LabVantage Electronic Laboratory Notebook (ELN)

Modern research laboratories are constantly evaluating new testing platforms, looking for better ways to perform and record their work. LabVantage ELN gives them an adaptable tool to work efficiently and collaboratively on process innovation or research projects, by replacing the paper lab notebook and formal meetings. The digital record increases productivity, data integrity, and shareable results while contributing to regulatory compliance.

Work Faster While Improving Collaboration

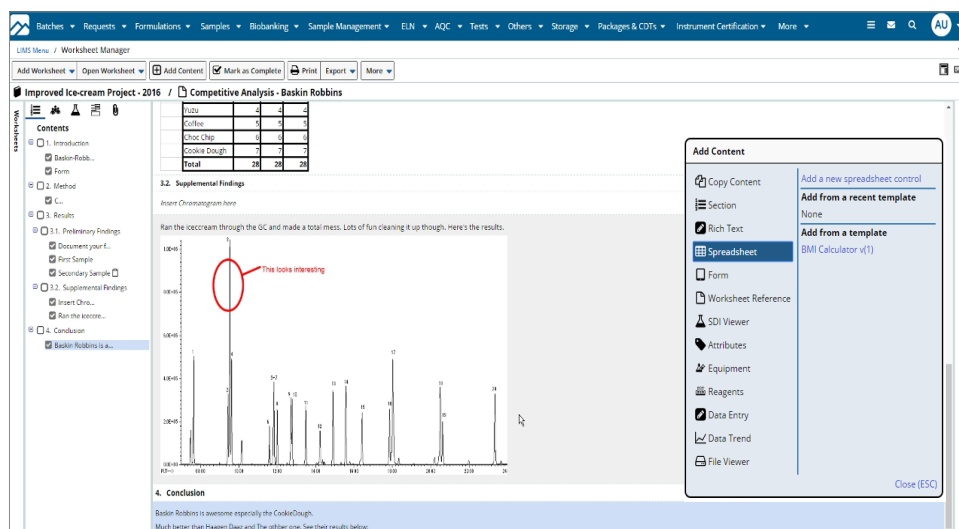
- Collaborate, search, and share ELN and LIMS test and sample documentation, meta data, and procedural steps
- Send test requests or samples to the lab and receive test results into the ELN workbook
- Annotate notes to share with team members and send experiment information to others with hyperlinks
- Connect related experiments with two-way links to reduce errors
- Search text in free-form and structured ad hoc queries
- Add structured and unstructured data to experiment notes
- Add user-defined metadata (predefined or added on-the-fly)

- Include or reference content from other worksheets
- Set separate security and permissions in ELN for scientists and others not using LIMS

Engage Creativity by Documenting Observations

Add structured and unstructured data to modernized worksheets by recording free-text entries and attaching files or program calculations such as:

- **Rich text** Formatted text, tables, images; use included formula editor
- **Spreadsheets** Define calculations, charts, conditional formatting, and heat maps
- **Images** Edit and annotate; maintain a library of attachments or embed images
- **Documents** Embed and visualize Word, Excel, PowerPoint, and PDF documents
- **Trend charts** Visualize data in chart format
- **Chemical structure** Can be uploaded and visualized, and can also be created and edited using Marvin (3rd party tool)



Moving from paper worksheets and lab notebooks into a digital environment offers centralization of data, reduced occurrence of error, and enhanced collaboration and flexibility.

Better Serve Your Enterprise With a Unified LES and ELN

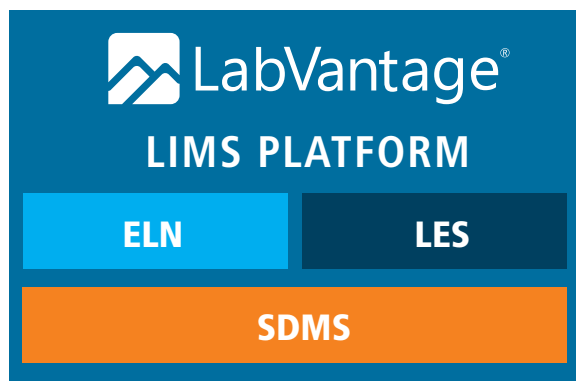
LabVantage LES and ELN systems are robust solutions, each providing superior results alone. Together, embedded within a unified LIMS platform, they serve both the free-form innovative R&D labs and regulated, controlled manufacturing QC testing labs – helping laboratories to modernize and evolve.

Improve Return On IT Assets

- All plugged in and ready to go
- No interface or API development required
- Minimize support and maintenance with configuration, not customization

Rely On a Single Source of Truth

- Maintain data integrity by logging, tracking and storing data and activity logs in LIMS
- Changes are audited immediately and tracked with time-stamped audit trails
- Set approval workflows for witnessing, contributors, and worksheet access using eSignatures



A single integrated platform: LabVantage LIMS embeds LES, ELN, and a Scientific Data Management System.

Increase Productivity

- Move seamlessly from LIMS to LES/ELN and back
- Inherit security and permissions from LIMS on samples and results
- Create synergistic connections between method innovation and lab execution

TO LEARN MORE ABOUT HOW LABVANTAGE LES AND ELN get your scientists on the same page, contact LabVantage at: info@labvantage.com



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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), and scientific data management system (SDMS); 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 www.labvantage.com.