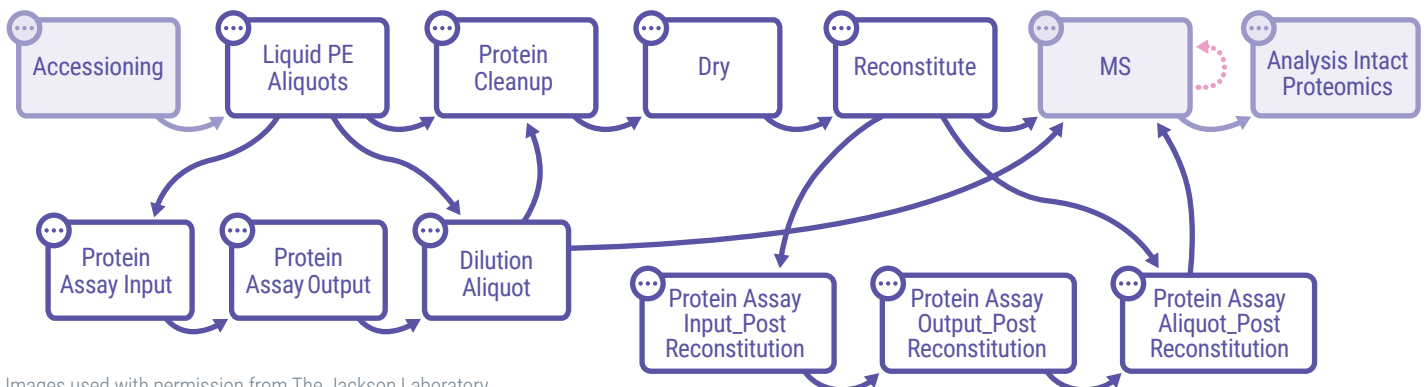**The Jackson Laboratory**

Supporting The Jackson Laboratory's Need to Increase Connectivity and Communication Across Research Groups via a Centralized Data Solution That Follows FAIR Data Principles

Providing life changing biomedical research via advanced genomics through establishing the mouse as the premier research animal model, The Jackson Laboratory has a critical need to make their data FAIR (Findable, Accessible, Interoperable, and Reusable). This approach makes all its data, generated across different disciplines and research laboratories, accessible to research groups and individual researchers without complicated permissions and sharing processes. It also allows JAX to make its research efficient and aligned across all disciplines.

Implementing an efficient data management process allows The Jackson Laboratory to make their data FAIR, it also enables the nonprofit to optimize its data flow and to minimize the use of cross-functional laboratory applications (i.e., software solutions) to four key applications. The Unified Platform L7|ESP® with its workflow orchestration was chosen as the central data platform to accommodate the growing requirements and to be more efficient and scalable.

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Challenge	L7|ESP Provides the Solution
Siloed Data, with Data Access Limited To Specific Labs/Research Groups	• Collects, tracks, manages, and stores all data for all experiments across labs and the entire organization within one platform • Tracks all research processes, instruments, and sample information, including location • Implements FAIR data principles • Creates transparency across research groups which results in enhanced, company-wide research efficiency • Makes data accessible to researchers that want to perform their own data analyses
Too Many Costly, Outdated, and Non-Integrated Applications	• Streamlines processes (e.g., proteomics processes) by implementing automated workflows via an optimized set of minimal applications • Integrates with any other, internal application, e.g., billing, scientific services, and legacy ELN platforms
Error-Prone Manual Tracking of Research Projects/Data Using Excel	• Removes the requirement for manual entity tracking • Includes inventory management

Manual Sample Tracking	• Automates sample tracking
	• Integrates with BarTender for label printing and barcode system
	  • Gathers and integrates data from L7|ESP for various BarTender label templates
	  • Removes manual label writing
	• Reduces time and errors via a connected barcode scanner system
	• Kicks off accessioning and prints labels ahead of time
	  • Supports better experiment planning and preparation

Revisiting "Old Experiments"	• Incorporates legacy projects and data • Provides access to any experiment from within one system

Tracking and Collecting All Samples At Scale	• Flexible and fully featured LIMS software that captures all process information
	• Collects, tracks, manages, and stores all data, sample information, instruments, and processes across all experiments within one platform
	  • Removes the requirement of manual data tracking
	  • Takes advantage of integrated Inventory and Location applet
	• Informs all business processes
	• Pulls services requests and sample submissions from iLab via the iLab ingest app

Manual Gathering of Protein Structure Diagrams	• Supports built-in project reporting • Captures all documents, including protein structure diagrams at the end of a workflow chain • Uses Flex View for interactive data capturing and reporting

L7|ESP brings organization and efficiency – 80% of their time compared to the legacy manual process - to The Jackson Laboratory research processes, centralizing research data, facilitating project, sample, and data tracking, minimizing internal applications use, optimizing inventory management, and increasing processing throughput and end user quality of life. The system not only allows for better connectivity and communication between various research groups and team members, but also supports FAIR data principles implementation needs, project reporting needs, and the need to efficiently identify and reference experimental data via a powerful global search capability.

> "We chose the L7|ESP as the central data platform as it allowed us to optimize internal data flow, implement FAIR data principles, integrate with the minimal set of four data applications, and accommodate our growing requirements to be more efficient and scalable."
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> *- Janet Bakeman, Manager, IT Applications - Research (Lab Informatics) at The Jackson Laboratory*