



CASE STUDY: CORE LIMS IMPLEMENTATION

Overview: A startup medical diagnostics company specializing in tests that identify and characterize tumor cells in blood samples chose to implement a cloud-hosted Core LIMS in their laboratories to support anticipated future growth. The diagnostics company decided that they did not want to rely on the vendor's services, and therefore asked Core Informatics to recommend a quality informatics consultant to support the implementation. Core Informatics referred the diagnostics company to Astrix Technology Group for development and implementation services, as Astrix's core technical team has been trained by Core Informatics experts, and Astrix has worked alongside Core Informatics on many implementation projects.

ThermoFisher
SCIENTIFIC

 **CORE**
INFORMATICS

Business Challenge: At the time Astrix engaged with the diagnostics company, they were using primarily paper-based processes in their laboratory and needed to transfer their complex workflows to a LIMS to improve laboratory efficiency and assure data integrity. In addition, investors were requiring implementation of a LIMS in the diagnostic company's laboratories as a condition that needed to be met in order fund their next round of expansion. The organization had a very short window of time to get this mission critical Core LIMS implementation completed in time for the release of a major clinical testing program – the company's core service offering.



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Service Provided: The Astrix team was involved in every aspect of the Core LIMS development and implementation, from developing user requirements to system customization and validation. Some of the key services which the Astrix team provided were:

- 1 **User Requirements** – Led discussions around defining workflows and user requirements.
- 2 **Instrument Integration** – A variety of instrumentation in the company laboratory was integrated with the Core LIMS in order to facilitate laboratory efficiency and automation.
- 3 **System Integration** – The Core LIMS was integrated with the broader company platform (which included Salesforce CRM) in order to facilitate communication regarding order status and workflows.
- 4 **Data and Workflow Configuration** – Various data types and calculations were developed in order to support workflows. This included:
 - Design and implementation of objects within Core LIMS to support the following real-world entities: orders, sample containers, sample types, batches
 - Defining Entity Types for Samples, Lots, Containers, Protocols, and Assays and making them available via the Core LIMS API
 - Configuration of analytical processes and calculations (e.g., time-zone-aware age of blood samples)
 - Creation of barcode labels for samples and sample containers.
- 5 **Custom User Interface** – The Astrix team created a new user interface containing applications, gadgets and dashboards. This custom interface was created on top of Core LIMS and allowed access to all of the custom functionality that was developed.
- 6 **System Customizations** – The out of the box functionality of Core LIMS did not support a number of the company's user requirements. A particularly challenging aspect of the 6-week timeline for this project was that the company's complex laboratory workflows required Astrix to create a lot of custom functionality utilizing JavaScript, HTML and REST API calls. Some examples of this custom functionality include:
 - The sample accessioning process utilized by the lab required validation of sample quality through a calculation of the time-zone-aware age of blood samples and capturing other parameters. The user interface had to be adapted to accommodate these validation requirements.
 - The lab's sample preparation process required performing a white blood count (WBC) on the sample and calculating the correct number of slides and/or other containers that needed to be created based on the results of this test. The Astrix team programmed the ability to create these slides/containers into the custom user interface.
 - The Astrix team built a service which sits inside the company firewall that acts as a middle man between the Core LIMS API and the company's Salesforce software to allow for advanced order authentication.
- 7 **System Security** – Defined Security for Employees and Access Levels
- 8 **System Verification Test Plan and Script Development**
- 9 **System Verification Execution and Summary Report**

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Results Delivered: The diagnostic company is very pleased with the level of support and expertise provided by the Astrix team on this project. This project was completed on time and within budget – critical for releasing the clinical testing program on schedule. The technical nature of the services delivered were well beyond what could have been accomplished by the vendor support services. The company made a number of additional customization requests post project completion, and Astrix successfully completed this additional work before the release of the company's clinical testing program.