

Product Development, Support and Implementation

Case Study

Domain: LIMS

Type: Outsourced Product
Development (OPD)

*“Software to meet your
laboratory specific needs
with enhanced security
for increasing regulatory
needs”*

Developed software application for “Laboratory Information Management System” (LIMS)

A project in LIMS domain that includes development of platform based applications supporting both desktop and web version of the software.

Challenge

- To develop a reusable Platform/ framework that can support multiple applications.
- Support for both desktop and web version on a common platform.
- Implementation of compatibility layer that would support coexistence of legacy system with the new applications on a platform
- Utility for synchronizing legacy database.
- Integration of various third party components and UI designs
- Provide maximum flexibility to cater various industries

Solution

- B.A.T. followed the agile SDLC methodology for smooth iterative incremental development of product applications and its corresponding releases.
- The platform, providing common set of domain services, was developed parallel with the new applications on the .Net technology
- A compatibility layer was developed to support platform services for the existing legacy applications

Assessing The Solution:

The client is a leading provider of precision instrumentation, reagents and chemistries, software and services for a wide range of scientific and industrial laboratory applications, including genetic screening, drug discovery and development, environmental monitoring, food and beverage quality, and chemical analysis.

B.A.T. assiduously assessed the client's requirement for Software Development on LIMS that can:

- Automate the Instruments
- Integrate the laboratory processes
- Provide Sample Information Management and
- Quality Control, i.e. from Scheduling to Analysis to Reporting

After proper analysis and assessment B.A.T. recommended OPD. The entire project included Development of new software features, Up-gradation of existing modules, Providing Support and carrying out Implementation.

The customer being a global technology leader driving growth and innovation in Health Sciences and Photonics markets to improve the quality of life, B.A.T. had to ensure that robustness and quality of the development adhering their existing stringent standards.

Session Managements and License Management. Comprehensive test suites were prepared along with the custom built test harness to check consistency and configurability across various applications using framework components. The product development process entered complete PDLC:

Inception: All board level requirements of client were vigilantly analyzed by the domain experts of B.A.T. The extensive experience in LIMS helped B.A.T. to define and analyze the requirements in detail.

Elaboration: At this stage B.A.T. team focused on the Requirement Development Processes, analysis of the problem domain and established an architectural foundation for the software. Most of the important risk elements of the software project were eliminated.

Construction: The implementation was carried out in an iterative manner, i.e. identified modules were defined and integrated to form testable functionalities which could be delivered. B.A.T. employed following development strategy:

- i. Build a "Dummy" GUI first and add Functionalities incrementally

Delivering The Solution:

Client approached B.A.T. for assistance. B.A.T. team assessed the exact requirement of the client and decided to follow '**B.A.T. Agile Process**' for a successful project management.

The client looked forward B.A.T. as a competent organization having skills in the area of Information Management, Framework based development and latest technologies to carry out their product development. The product development involved complete SDLC as well as maintenance and enhancements activity.

The framework/ platform components were using the latest technologies. Testing harness was developed to validate platform services until the applications were completely developed and integrated on the platform to utilize its services. A compatibility layer was programmed to support these new platform services for legacy applications. Thus making it possible for legacy applications to coexist with new platform based applications during the initial releases.

Correct understanding of application, core software and end-user perspective plays vital role in providing accurate solutions, thus B.A.T. handled entire process very smoothly and professionally which was well appreciated by the client.

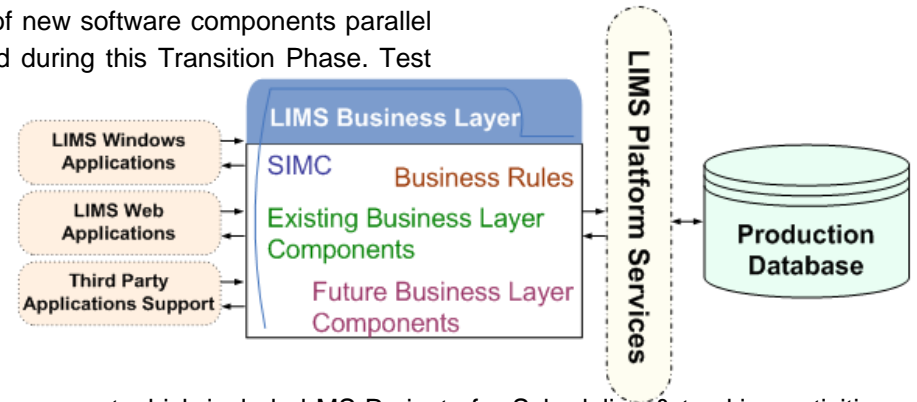
Methodology:

The strategy adopted was Architecture Driven Development ensuring a strong framework design. The approach was to have a common design for Desktop and Web applications. Main components identified for platform were State Management, Audit Trail, Messaging, Error Handling, Internationalization,

- ii. Build “The fast path” representing the main Business Cycle and Add functions to the modules in the main Business Cycle

Transition: Iterative development strategy was proposed; it helped in the development of new software components parallel with Verification of the previous components. A testing Strategy was proposed and used during this Transition Phase. Test plan included Verification and Validation:

- i. Verification included Reviews/ Walkthroughs for Requirements, Use Case Model, Sequence Diagram, Class Diagram, and Code as well as Unit, Integration, Function, and System Testing for Code
- ii. Validation included comparing the results with manual analysis and User Acceptance Testing



Product Release

Project Management: An imperative element of this project was its effective project management which included MS-Projects for Scheduling & tracking activities and for Resource Assignments

Maintenance and Enhancement:

- i. Maintenance scope was defined as Corrections of defects that were found in existing operational software
- ii. Enhancement scope was defined as Development of additional programs, features and or interfacing in the existing software, Enhancements & Change Requests

Customer Support: The service deliverable consists of resolution of issues arising during operational life of the software, which may require appropriate explanations to the customers

Key Technologies:

- Platform: Microsoft .Net
- Environment: VS 2005/ 2008
- Language: C#.Net, ASP.NET
- Rational Tools– Requisite Pro, Clear Quest and Clear Case Multi-site
- Visual Build Pro
- Install shield 2008

Benefits:

- B.A.T. worked as an extended arm to the client, which helped client to concentrate on Core Tasks
- The client had access to diverse skills under one roof– B.A.T.
- Smooth and effective implementation of the project.
- OPD model helped client to provide continuous support to their customers globally.
- The client fulfilled their commitment to the customer without any major management and resource overheads.
- The expertise at B.A.T. reduced development and maintenance cost of the client.