

OUTSOURCED PRODUCT DEVELOPMENT

Case Study

Domain: Imaging Technology

Type: Outsourced Product Devpt.

“Software for Optical microscopes that identifies the inclusions in material (steel) and grade them according to available standards”

Developed a software application for “Feature Recognition” for high precision optical instruments

A project in the area of image processing allied with metallurgy. B.A.T. successfully offered Outsourced Product Development (OPD) services for the project.

Challenge

- Implementation of new features which were **compatible with previous installed deliverables** or provided means to upgrade from the previous deliverable to the new version
- To capture the knowledge of existing software for Optical microscopes and **its code base** as the product to be developed was a part of complete suite of software offered by the client

Solution

- B.A.T. followed **phased approach** with smooth iterative incremental implementation of new software features and full compatibility between the phases
- The product development involved **complete SDLC as well as the maintenance and enhancements activity**

Assessing The Solution:

The client is a leading global innovator, manufacturer and supplier of high precision optical solutions based on microscopes and related instruments. The client also offers advanced software and Imaging solutions supporting a wide range of applications in the field of optical microscopy.

B.A.T. assiduously assessed the client's requirements of "**Feature Recognition**" that identifies the inclusions in material (steel) and grades them according to available standards. B.A.T. recommended OPD which included implementation of new software features as a part of complete suite of software offered for Optical Microscopes by the client.

The customer being a leading global name in the field of high precision optical solutions based on microscopes and related instruments, B.A.T. had to ensure that robustness and quality of the development adhering their existing stringent standards.

Methodology:

The product development process followed **phased approach** with smooth iterative incremental implementation of new software features and full compatibility between the phases. B.A.T. ensured that every new deliverable of the software that was implemented was compatible with previously installed deliverables or provided means to upgrade from the previous deliverable to the new version. Following were the steps:

Inception: All board level requirements of client were vigilantly analyzed by the domain experts of B.A.T. With the imaging and metallurgical background, B.A.T. defined and analyze the requirements in detail.

Elaboration: At this stage all the applications were designed and the required architecture was developed.

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
- ii. Build "The fast path" representing the main Business Cycle and Add functional enhancements to the modules in the main Business Cycle (**See Figure 1.0**)

Delivering The Solution:

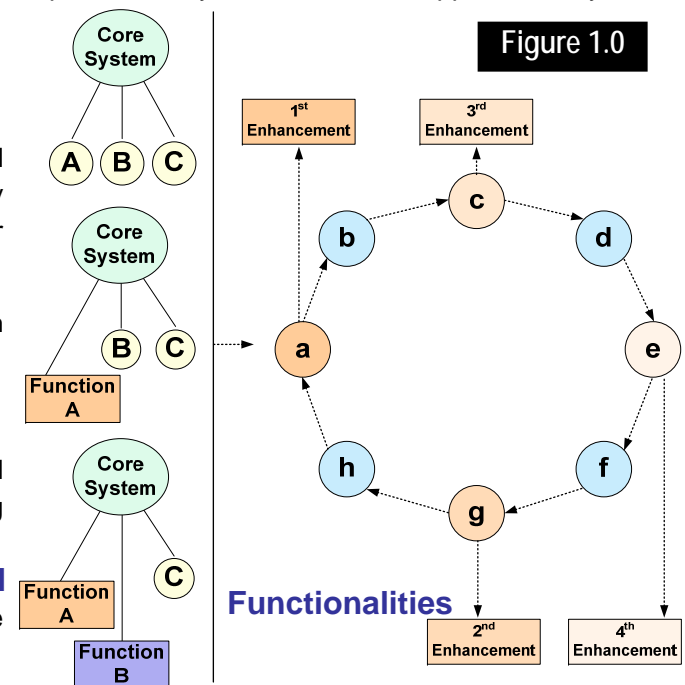
Client approached B.A.T. for assistance. B.A.T. team assessed the exact requirement of the client and decided to follow "**Rational Unified Process**" for a successful project management.

The client looked forward B.A.T. as a competent organization having skills in the area of image processing allied with metallurgy, to carry out their product development. The product development involved complete SDLC as well as the maintenance and enhancements activity.

The product to be developed was a part of complete suite of software offered by the client, thus had to be built using Framework which was developed parallelly.

Specific functionalities were provided through Application Plug-ins which were capable of interpreting information from images, processing them further and producing results in the required formats.

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.

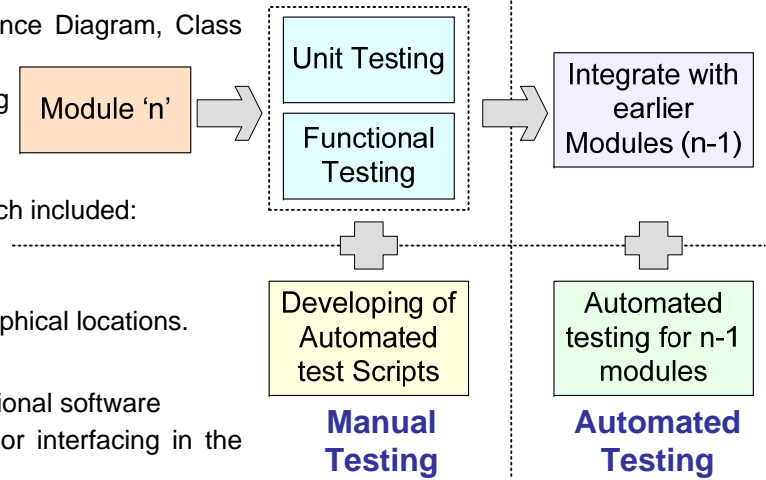


Dummy GUI

Figure 2.0

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: **(See Figure 2.0)**

- 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:

- i. MS-Projects for Scheduling and tracking activities and for Resource Assignments
- ii. Critical Chain Scheduling and Buffer Management technique used for planning the project
- iii. Flexible plans to easily accommodate delays due to parallel development at different geographical locations.

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 and Change Requests

Customer Support:

- i. Post sales support issues- 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 2003
- Language: C#.Net
- Rational Tools– Requisite Pro, XDE, Purify-Plus, Robot, Clear Quest and Clear Case
- Perforce

Benefits:

- On-time project completion and the client provided the required functionality as per the Release Plan (coupled with Hardware Release).
- 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 client.
- OPD model helped client to provide continuous support to their customers globally.
- The client had access to diverse skills under one roof– B.A.T.
- B.A.T. worked as an extended arm to the client, which helped client to concentrate on core tasks.