

## BD Biosciences – A Case Study

### Project Background

Limina worked with BD Biosciences, a division of Becton Dickinson and Company (BD) to help improve their flagship software package. This software is delivered to the customers as a preinstalled application that comes packaged with their analytic instruments. The vision moving forward was to create a piece of software that could compete with other similar stand-alone analysis packages that were entering the market.

### Challenges

Senior management was looking for tactical recommendations to enhance their product usability thereby improving overall product performance. As a legacy piece of software new features had been added on an ad-hoc basis resulting in known and well documented usability issues.

Limina was asked to complete an evaluation of the application and make recommendations for targeted improvements.

### Our Approach

Limina applied a proven approach to this problem, broken into four phases,

1. Completed an evaluation of the software
2. Recommended design solutions for high ticket items
3. Reviewed designs with user representatives
4. Worked with development teams to implement designs
5. Beta tested the application before it was released to the public

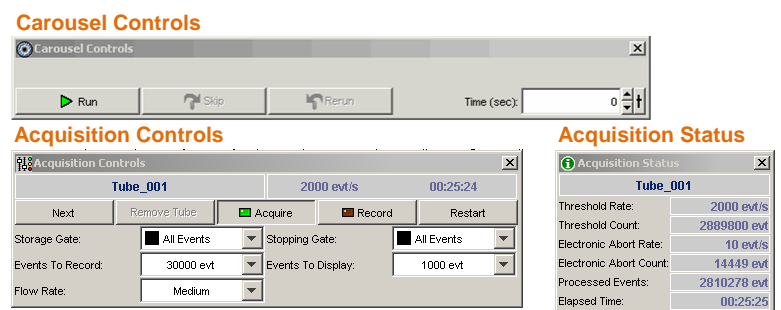
### Evaluation Process

#### 1. Initial Review of FACSDiva

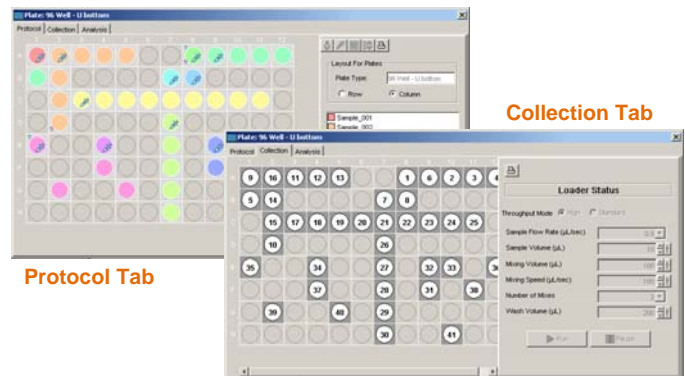
Limina began their evaluation by gaining some background knowledge of the application, attending a review of its operations, and then identifying key areas of focus the evaluation.

This case study demonstrates how Limina addressed two areas requiring the most significant redesign effort.

#### Original Acquisition Controls



#### Original Plate Protocol and Collection Tabs



#### 2. Design Recommendations

After presenting our evaluation, we were asked to come up with design recommendations for improving these two areas of the application. Using the customer knowledge we had gained to date as well as our design expertise, we created detailed design solutions which were reviewed and iterated on until both Limina and BD were ready to take the designs to the user representatives for evaluation. The designs effectively incorporated multiple individual controls onto one “dashboard” (below on

left) for simplified presentation and understanding. The plate design (below on right) was required to combine two kinds of data (Setup and Acquisition) onto one screen which demanded that we use effective data visualization techniques to make pertinent information stand out and allow customers to filter out data that wasn't needed for specific tasks.

### 3. Reviewed Design with Users

BD made it a practice to employ a group of individuals who effectively represented their different sets of external users. We used this group to test and validate the design recommendations. The feedback from the group was analyzed and worked into further revisions of the designs until they were ready to be implemented by the development team. Key marketing and software engineering stakeholders were involved in the design process from brainstorming through review of detailed designs. Prior to delivering the designs to the development team, there were multiple refine/evaluate iterations as technical feasibility was tested and validated.

### 4. Worked with Development Team to Implement Designs

The resultant designs were delivered to the development team. Limina stayed closely involved with the process – answering design questions or making necessary adjustments to the user interface. The process was very collaborative, with frequent dialog between the Limina and development teams. Limina also developed detailed design specifications as part of their documentation.

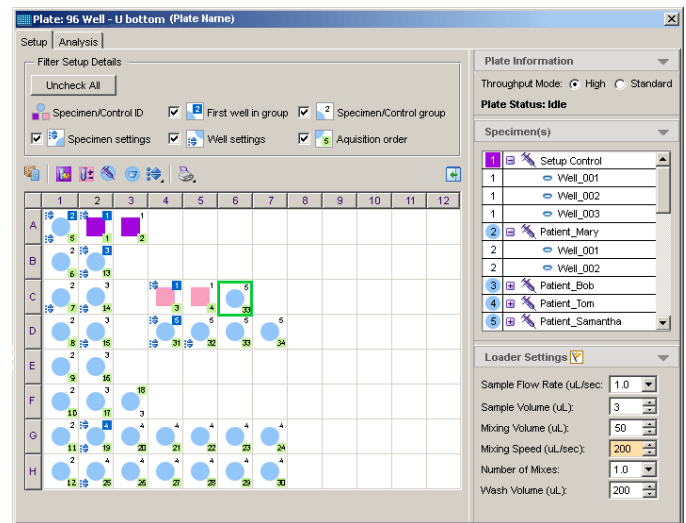
### 5. Conclusion

The Limina engagement resulted in a significantly improved application that users are excited about. BD Biosciences gained valuable insights regarding the value of usability and the ease with which it can be incorporated into the software development process.

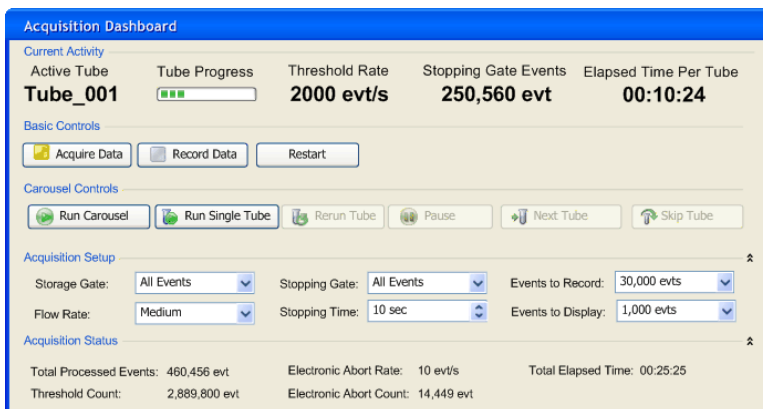
### Result

According to customer feedback “the result is a significantly improved application that is much easier to use”. Enhanced usability was one of the primary factors that improved the product's competitiveness. Some of the specific areas addressed were workflow, data visualization, and iconography.

Redesigned Plate Setup and Acquisition page



Redesigned Acquisition Controls (“Dashboard”)



“FACSDiva makes CellQuest look positively prehistoric... FACSDiva dominates over FlowJo...”  
 - BD Customer

"The FACSDiva 5.0 version seems to be better in many areas. Enhanced features and flexibility are appreciated"

- BD Customer

"Limina is a highly collaborative and flexible team that helped us build usability into a complex application within a short time and amazed our customers"

- BD Project Manager

### Next Steps

We look forward to working with you to collaboratively identify, prioritize, and address any design challenges within your product(s). Contact us today and we will do a high level assessment of your product and clearly articulate how your product can be significantly improved.

"Overall impression is very good! We all appreciate the new features..."

- BD Customer