



#### ICONIX PHARMACEUTICALS

A leader in the field of chemogenomics providing data and software to aid in the development of safe and effective new drugs.

**Industry:** Life Sciences  
**Geography:** United States

#### Deployment Summary

- Iconix uses TIBCO General Interface™ Framework to power an intuitive, high-productivity graphical user interface (GUI) for its comprehensive DrugMatrix database.
- TIBCO General Interface enables Iconix to bring together the vast array of data that pharmaceutical companies require into a single, easy-to-use, and highly interactive web application that looks, feels, and performs like a thick client, yet is instantly accessible through a standard web browser.

#### Benefits

- Integrating complex drug data in an interactive interface helps pharmaceutical companies work more productively to bring safe, effective drugs to market.
- Using TIBCO General Interface Framework and TIBCO General Interface Builder helped Iconix bring the product to market twice as fast and decrease the development costs by two-thirds compared to building a standard client/server architecture.
- Using TIBCO General Interface to deliver a feature-rich GUI that runs in a standard web browser differentiates Iconix's offerings from those of the competition and saves customers the significant costs of deploying and maintaining a thick client.



“By using TIBCO General Interface instead of a standard client/server architecture, we were able to develop our DrugMatrix product for about a third of the cost and bring it to market twice as fast.”

**Alan Roter, Vice President of Informatics, Iconix Pharmaceuticals**

## TIBCO Helps Improve Productivity for Iconix

Founded in 1998 by distinguished scientists and pharmaceutical industry professionals, Iconix Pharmaceuticals is a pioneer in the emerging field of chemogenomics, a discipline that bridges chemistry and genomics to provide valuable insights that aid new drug development. As a hybrid biotechnology company, Iconix combines skilled laboratory research with expertise in software development to deliver the world's largest chemogenomics database to its customers – leading pharmaceutical companies that rely on effective new drug development, including Schering-Plough, Bristol-Myers Squibb, and Abbott Laboratories.

Iconix makes the vast body of information contained in its chemogenomics database available to pharmaceutical companies through DrugMatrix, its flagship product. The DrugMatrix database and software incorporates the many types of drug data that pharmaceutical companies require into a single, intuitive web browser-accessible GUI that helps companies better understand the effectiveness, side effects, and safety issues of the drugs they are developing. Using DrugMatrix can

help pharmaceutical companies optimize drug candidates before they advance to expensive preclinical and clinical studies, allowing them to better bring effective drugs to market economically and in a timely fashion.

“For pharmaceutical companies, it has traditionally been a problem that a large amount of drug data is only available from separate databases,” says Alan Roter, vice president of informatics at Iconix Pharmaceuticals. “It is difficult to make ground-breaking ‘ah hah!’ connections when you cannot see the data integrated in one place.”

#### TIBCO enables highly interactive interfaces for complex data

Iconix set out to change this paradigm through its DrugMatrix application, which integrates publicly available drug literature with extensive amounts of experimental data generated by Iconix research laboratories. To date, Iconix has tested more than 900 drugs in its laboratories, characterizing each drug's activities in a panel of 130 bioassays. Even more compelling for pharmaceutical customers is the data that DrugMatrix provides in the area of gene expression, a newly emerging discipline that uses microarray

technology to measure the level of gene expression for large numbers of genes. Iconix has run 12,000 microarrays – each of which measures gene expression for about 10,000 genes – to generate 120 million data points in the DrugMatrix database for gene expression alone.

“The DrugMatrix database contains a tremendous volume of information – about 200 million data points total that users can access by running queries,” Roter says. “In addition, each drug listed in the database contains several types of information, including literature, bioassays, and microarrays. So when we built the DrugMatrix interface, we needed a technology that could satisfy several criteria for us, such as low cost of ownership and high interactivity.”

Iconix wanted a GUI that could consolidate many types of drug information and provide numerous views of that data. Iconix also wanted to keep development costs low and maximize customer convenience by employing a web technology that would not require any software to be installed on the client – yet the company also was committed to surpassing the functional limitations of traditional web pages.

“TIBCO General Interface brings a level of interactivity to web applications that we had previously thought impossible,” Roter says. “We adopted TIBCO General Interface for the first version of DrugMatrix and have been very pleased with our decision.”

#### **TIBCO General Interface minimizes development time and costs**

TIBCO General Interface Framework provides DrugMatrix with performance and features typically found only in

thick-client GUIs, and the TIBCO General Interface Builder product enables Iconix to develop DrugMatrix in an extremely cost-effective manner. Before selecting TIBCO General Interface, the Iconix staff had briefly considered implementing DrugMatrix as a Java Swing application in a standard client/server architecture with a heavy client. Roter estimates that the decision to use TIBCO General Interface saved Iconix significant time and money.

“By using TIBCO General Interface instead of a standard client/server architecture, we were able to develop our DrugMatrix product for about a third of the cost and bring it to market twice as fast,” Roter says. “And by keeping our development costs low, we were able to offer it at a lower price to our customers.”

The web-based TIBCO General Interface Framework has also helped keep ongoing support efforts at a minimum as compared to typical client/server architectures. “Because the DrugMatrix client loads from the server to the end user’s web browser just like any HTML page, we never have to worry about customers trying to run the newest version of the product with an old version of the client,” Roter explains. “The TIBCO General Interface implementation also minimizes maintenance efforts for customers because there is no software to install or keep up-to-date on the client.”

#### **Responsive, intuitive product helps companies get drugs to market fast**

Even more important than the cost savings enabled by TIBCO General Interface is the responsiveness and ease-of-use it provides to customers who use the DrugMatrix product. The highly

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interactive system returns query results in a matter of seconds and eliminates the need for users to refresh the computer screen during a session.

“Not having to refresh the screen all the time makes a big difference in customer perception of the usability of the DrugMatrix product,” Roter says. “We get a lot of compliments on the quality of our software – a lot of positive feedback from customers. Given how complex the domain is, we have succeeded in creating a product that is remarkably easy-to-use and intuitive.”

Roter feels this user-friendliness and interactivity has the potential to help Iconix customers become more productive and provides a significant differentiation over competing solutions. “By integrating drug literature, bioassay information, and gene expression information together in an intuitive, responsive interface, Iconix is helping customers use the data in a more effective way – to get to market fast with safe, effective new drugs,” Roter says. “In an indirect way, TIBCO General Interface is fueling discovery and invention.”



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