

## Information Capture Across Organizations

By Daniel Weaver and Michael Capsambelis

*Organizational changes are crucial to connect discovery teams.*

**Dec. 17, 2007** | Drug discovery doesn't necessarily accelerate when companies integrate formerly stovepiped databases. While overcoming technical barriers that segregate data streams is an important prerequisite, accelerating drug discovery ultimately hinges on bridging the organizational divides that isolate people, projects, and knowledge.

For example, executives, project managers, and scientists must routinely interrupt discovery progress to track down data and prepare progress reports. Yet, often, they must still take action without all necessary information, even when it exists within their own organization.

Often, observations and intuitions arising from one person's research are pertinent to work happening elsewhere in the company, but most team members are unlikely to know when their own ideas might augment others' hypotheses. Currently, the understanding one team has of another's thinking is confined to periodic, "batch" updates that cover only the highlights. This limits prospects for impromptu collaboration that hasten drug discovery.

Life sciences informatics applications are evolving to address organizational integration. People use these applications to explore data and to get an up-to-date, dynamic picture of what others involved with the discovery pipeline are doing. The goal is deep, ongoing situational awareness: a mutual understanding among executives, managers, and scientists of the many issues that affect discovery. This shared awareness relies on both traditional, structured data (scientific and financial) and human knowledge and interpretation, such as team members' ideas, hypotheses, and plans.

Applications that integrate primarily traditional data streams are effective for such tasks as seeing and exploring an outline of the portfolio's recent performance. However, these structured drug discovery data represent the endpoints of past action: last week's assay results, the past quarter's earnings, etc. In contrast, applications that combine traditional data streams with researchers' questions, observations, and goals are innately future-oriented. They furnish fluid, forward-looking pictures of the discovery pipeline and its component projects that experienced people use to coordinate more effectively with others throughout the organization.

### **Knowledge and Composability**

Capturing a continuous, up-to-date flow of human knowledge in a useful form is challenging. Applications that accomplish this generally have two important characteristics.

First, they collect diverse human insight and expertise in ways that can be pooled with structured, visual data, and shared and explored in the same context. The knowledge-capture mechanism must be flexible. Because it's impossible to define in advance what information will lead to spontaneous insights, conventional tools such as templates are too limiting.

Second, they capture information automatically, as a natural outgrowth of people's daily activities. Processes that require people to stop work and explicitly summarize their thoughts for inclusion in a database are inefficient and ineffective, interrupting discovery progress and capturing only a

superficial overview of researchers' ideas. Some informatics applications now feature tools such as annotations - ink, text, and sticky notes that team members use to attach questions and ideas to other data as they work. This provides a current, searchable view of team members' collective analyses and thoughts.

Composability is another emerging application feature designed to illuminate people's thinking and knowledge. In drug discovery informatics, individuals use composable workspaces to flexibly combine and analyze different pieces of visual and/or textual information. For example, a scientist may place a subset of assay results and a few promising compound structures that (s)he wants to synthesize (with accompanying notes) into a single workspace. This composition helps clarify thoughts, and also offers a meaningful view of the scientist's progress, so other team members can see what she is thinking and where she is headed.

The result is a more tightly coordinated organization in which those involved with the pipeline maintain insight into what others are doing and thinking. Shared situational awareness makes it possible to reallocate time to those that more directly push discovery forward, and to take action based on better information. Discussions shift from factual "who," "where," and "what" details to more discovery-oriented "how's" and "why's." And, such collaborative analyses are captured for future reference.

Ad hoc hallway conversations will continue to be an important source for drug discovery collaboration. However, informatics applications people use to pool disparate knowledge encourage similar collaboration to happen much more frequently throughout the organization. Ultimately, this opens up many new opportunities to accelerate drug discovery.

*Daniel Weaver is associate director of scientific computing at Array BioPharma; [daniel.weaver@arraybiopharma.com](mailto:daniel.weaver@arraybiopharma.com). Michael Capsambelis is director of product management at Viz, a business of General Dynamics; [michael.capsambelis@gdviz.com](mailto:michael.capsambelis@gdviz.com).*

-----  
**Subscribe** to *Bio-IT World* magazine.

[Click here to login and leave a comment.](#)

**0 COMMENTS**

**ADD COMMENT**

Text Only 2000 character limit

Add Comment