



# MOVING SCIENCE FORWARD WITH BETTER LABORATORY COLLABORATION

**DAVE CHAMPAGNE**, Vice President and General Manager, Informatics, Thermo Fisher Scientific, discusses informatics and the changing face of information-sharing in the pharmaceutical industry.

Dave Champagne was named vice president and general manager of Thermo Fisher Scientific's Informatics business in April 2005. He joined Thermo Fisher in April 2003 as director of global services for Informatics, and was later promoted to commercial director for the company's Informatics and Services division. Champagne's career includes 13 years at Lotus Development Corporation and two roles as chief executive officer for early-stage software companies. A graduate of the University of Massachusetts with a BS in Industrial Engineering and an MBA from Bryant University, Champagne built his career in enterprise software organizations.

Thermo Fisher Scientific is the world leader in serving science, enabling customers to make the world healthier, cleaner and safer. Its Thermo Scientific software solutions, including laboratory information management systems (LIMS), chromatography data systems (CDS), spectroscopy and pharmacokinetic/pharmacodynamic applications, serve 19 of the top 20 pharmaceutical companies worldwide.

**What do you see as some of the biggest challenges facing pharmaceutical/biotech companies in the informatics space today?**

I believe collaboration is a major challenge in the biotech and pharmaceutical industries today. A company's ability to make its data available throughout the organization so scientists and researchers can collaborate and benefit from full visibility into what has and hasn't been previously studied or discovered is crucial.

Biotech and pharmaceutical companies are overwhelmed by the sheer volume of data generated in their laboratories. I recently read that Merck has libraries of some 2.2 million compounds. Their robotic systems are generating more than 60 million assay results per year – up from 8 million in 2001. By using RNA interference (RNAi), 600,000 RNAi wells were screened last year to identify new targets.

Volume is not the only problem. Disparate data types and storage systems – or a lack of storage systems – make it nearly impossible to search for and mine data. We estimate that 20 percent of data is “structured” – that is, organized, managed and stored in a central solution, like a LIMS or CDS. The other 80 percent, which is referred to as “unstructured,” sits in individuals' paper lab notebooks, as spreadsheet or document files on PCs, as e-mails and so on. It's unstructured because there is no central repository to aggregate the data contained in these formats.

So the challenge is: How do you create intelligence from all this data, both structured and unstructured, across the enterprise?

We're finding that for many of our customers, information is often siloed in a particular laboratory or department. This prevents scientists from collaborating on projects and results in numerous inefficiencies. These companies acknowledge that they repeat work because their scientists simply do not know that a particular compound has already been studied elsewhere within the organization.

For example, research scientists would benefit from knowing which samples to exclude because of poor ADME/Tox results discovered in related research already done by their colleagues. Making that information available across the organization is crucial. Biologists, computational chemists and experimental chemists all need to work together to identify strong candidates and help bring them to market. This brings with it different terminology and challenges to understanding what the information means.

Thermo Fisher Scientific recently announced our collaboration with Microsoft, so we can use best-in-class technologies and tools to build enterprise-wide solutions that address our customers' entire value chain. This will enable them to aggregate both structured and unstructured data to look for relationships and trends that enrich their knowledge and understanding.

**How is Thermo Fisher Scientific working to help pharmaceutical and biotechnology companies to find and share information?**

Thermo Fisher announced in March 2007 that we're working together with Microsoft to develop next-generation laboratory knowledge management solutions designed to move science forward at an accelerated rate. The products will be built on Microsoft's technology platform.

As the leader in LIMS, Thermo Fisher has well over 20 years experience building software solutions that manage structured data. Microsoft is the leading provider of software that creates unstructured data – for example, the spreadsheets, e-mails and Word documents that are used in laboratories. Customers have been asking us to work toward this solution, and joining forces is an ideal way to make it happen.

As part of our work with Microsoft, we announced we are developing an Electronic Laboratory Notebook (ELN), based on the .NET version 3.0 framework. With an ELN in our portfolio, Thermo Fisher can provide customers with a complete, end-to-end solution for data acquisition, storage and analysis.

ELNs, as a category, are designed to replace the paper notebooks in which scientists and researchers record extensive notes resulting from their experiments and processes. In addition to collaborating with their colleagues, scientists will use the ELN to access unstructured research and reference information as well as the structured laboratory testing information that resides in a LIMS and CDS. It's a tool that allows users to search and mine both types of data, which really enhances their knowledge and contributes to more efficient research.

We've also joined with Microsoft in the BioIT Alliance, which is an organization of biotech, pharmaceutical, hardware and software companies working together to realize the potential of personalized medicine. Our participation enables us to work collaboratively to develop industry-wide conventions for sharing data using Microsoft technology. As part of this, we announced that we are committed to supporting open-XML standards for data exchange.

I would also like to point out that Thermo Fisher is working to both expand and integrate our portfolio of LIMS, CDS and data interpretation software tools onto a single platform, using Microsoft technologies. By making our solutions more compatible with each other and the lab network, we're helping our customers to make their findings available enterprise-wide.

### **Can you give an example of how pharmaceutical companies are using informatics for better collaboration?**

The most important challenge for pharmaceutical companies is the management of their portfolio of drug candidates. To do this effectively, they must enable all participants in the drug development process to share information about past efforts – both failures and successes. For example, drug discovery chemists and biologists need to know what compounds have passed and failed previous ADME/Tox testing. Only then can they validate and enhance their methods and disease models to enable them to promote the right compounds, while failing the wrong ones as early as possible.

Pfizer Global Research & Development co-presented a poster with us detailing the advantages of using our Thermo Scientific Galileo LIMS™ to broadly disseminate in vitro ADME data for maximum use throughout its organization. Galileo enhances the value of acquired data by ensuring consistency in the ADME calculations and uploading the information to corporate databases for broad dissemination and impact.

This is more far-reaching than ADME/Tox; it applies anywhere in the pharmaceutical value chain. Pfizer announced last year that it was "stepping up its efforts to get more information from existing clinical trial data. The company is turning to sophisticated data mining techniques to help improve the design of new trials, to better understand possible new uses for existing drugs and to help examine how drugs are being used after they have been approved."

The key is to make this information accessible to scientists across the entire organization and provide them with the information they need to tackle the world's toughest health issues. As long as we make the information available, with tools that make knowledge out of the data, scientists will find a way to use it.

### **How do Thermo Fisher's products provide real solutions for pharmaceutical customers?**

Thermo Fisher is the market leader in LIMS, with an integrated CDS offering, and our solutions are purpose-built for the pharmaceutical value chain. We offer distinct solutions to serve every stage from early discovery to pharmaceutical manufacturing QA/QC.

Here is how we've organized our software products serving the pharmaceutical industry, from drug discovery to manufacturing:

- Nautilus LIMS™ – Drug discovery, genomics, proteomics, high throughput screening
- Galileo LIMS™ – Preclinical in vitro studies
- Watson LIMS™ – CRO and clinical/bioanalytical DMPK studies
- Darwin LIMS™ – Manufacturing QA/QC and R&D
- Atlas CDS™ – Supports all pharmaceutical and biotech applications
- EP/Kinetica – Database analytical tools for PK/PD

Thermo Fisher is building the next generation of these solutions on a single platform, based on open standards, to achieve the collaboration required to move science forward.

### **About Thermo Fisher Scientific**

Thermo Fisher Scientific Inc. (NYSE: TMO) is the world leader in serving science, enabling our customers to make the world healthier, cleaner and safer. With an annual revenue rate of more than \$9 billion, we employ 30,000 people and serve over 350,000 customers within pharmaceutical and biotech companies, hospitals and clinical diagnostic labs, universities, research institutions and government agencies, as well as environmental and industrial process control settings. Serving customers through two premier brands, Thermo Scientific and Fisher Scientific, we help solve analytical challenges from routine testing to complex research and discovery. Thermo Scientific offers customers a complete range of high-end analytical instruments as well as laboratory equipment, software, services, consumables and reagents to enable integrated laboratory workflow solutions. Fisher Scientific provides a complete portfolio of laboratory equipment, chemicals, supplies and services used in healthcare, scientific research, safety and education. Together, we offer the most convenient purchasing options to customers and continuously advance our technologies to accelerate the pace of scientific discovery, enhance value for customers and fuel growth for shareholders and employees alike.

For information about Thermo Scientific informatics solutions please call 866.463.6522 or visit [www.thermo.com/informatics](http://www.thermo.com/informatics).