LabAnswer

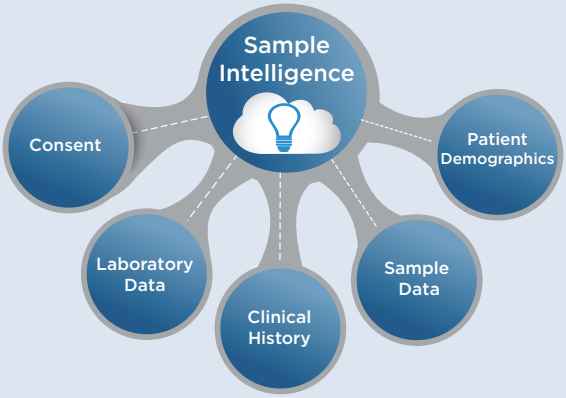
Clinical

SAMPLE INTELLIGENCE THROUGH DATA VIRTUALIZATION

Biorepositories and biobanks around the world have an increasing need for greater visibility and intelligence around sample management data to support clinical research advancements due to the growing trend in pharmacogenomics research and biomarker development. Historically, samples were treated as commodities and used for single use studies. In today's clinical research environment, scientists can repurpose samples for future studies so they need to know more than just where a sample is located. Descriptive data that helps researchers understand important characteristics, such as what the sample can be used for, how it has been consented, and relevant clinical or laboratory testing result data are all increasingly important data elements. If this information is not known or readily available, then that sample cannot be used effectively and the value of the sample and the quality of the research is seriously impacted. As a result, there is a need to move from treating a sample as a commodity to treating it as a reusable and valuable scientific asset. Many biorepositories and research organizations are seeking technologies and related strategies to improve overall sample intelligence.

SAMPLE INTELLIGENCE

Clinical researchers and research organizations need to be able to integrate all of their research datasets, including biospecimen data, so they can generate insights which enable them to better utilize these scientific assets. Typically, sample data might only come from one particular study, group, or within one particular research environment. Today, it is possible that "future use consent" allows those samples and the associated data to be used more broadly than the researcher initially thought when the sample was collected. Samples from one study may hold some key biomarker information that might be relevant to another study. Therefore, it is important for researchers to make sure that samples and related sample data are able to be collected, integrated and reconciled in a consistent manner and accessible from a single visual view. Combining sample data with disparate discovery and clinical data provides scientists with the insight needed to select the best samples or data to advance their research studies.



For example, one sample dataset may include details such as what type of sample it is, type and level of consent, relevant clinical data including patient clinical history, laboratory result data, and the patient's demographic information. Another dataset might contain both clinical information and additional patient data information, while the third dataset is focused on genotyping data. Sample data may be stored in one database, while clinical data is stored in another and genotyping data in yet another system. Each database could be associated with a different vendor or legacy system, or perhaps even a different organization. These complexities often make it difficult for research assets to be optimized.

BioStorage TECHNOLOGIES

"LabAnswer has delivered strategic technology and data management consulting which has supplemented our ability to launch innovative enhancements to our technology solutions. They have been the perfect partner for this endeavor.

The skills and insight they brought to the project have been instrumental in allowing us to successfully grow our portfolio of comprehensive sample management solutions and offer valuable insight to our customers to support their research endeavors."

Lori Ball, Chief Operating Officer of BioStorage Technologies, Inc.

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In addition, there is often metadata that is related to the samples: the date it was collected, the date it was stored, and the location in the storage unit, or storage environment conditions. While this data is fairly structured, data such as lab notes taken in context with the sample are not very structured. The challenge becomes how to extract some structure out of that unstructured or semi-structured data (through keywords or parsing strings, etc.) and properly represent it as a relational data source so that it can be combined with a more structured data source.

DATA HARMONIZATION & VIRTUALIZATION

Bringing structured data, internal unstructured content systems, and external data that has structure but is not easily accessible together has never been more important for sample management data consumers and research organizations looking for information related to samples. Equally important is that data scientists and clinical researchers need consistent visibility into, and access to, all data assets. Presentation of data in a way that is easily accessed and highly usable is critical for clinical researchers and data consumers.

Conceptual Data Virtualization Diagram

ENABLING CLINICAL RESEARCH

Leveraging data virtualization, drug development teams and partners can create a sort of virtual data layer; a logical or canonical view of entities from disparate, structured, semi-structured or unstructured data sources. In the case of sample intelligence, the entities are samples, patients, informed consents, the type of disease, inhibitor or molecule, or any other relevant descriptive data. Once that virtual data layer is created, it creates unified access to the intelligence which can be served up to users in innovative visual ways. This makes it easier for scientists and clinical researchers to achieve real-time or right-time access to the data intelligence that is located across distributed or disparate data sources. This valuable access also significantly reduces the need to constantly replicate the information, which saves time and cost, and establishes an easier path to governance by applying security and access rules. This approach also supports US FDA 21CFR Part 11 compliance requirements for regulated environments.

Additionally, the insight and analysis that is supported by data virtualization reduces research costs and time-to-market for research deliverables. Research organizations can improve their overall global sample data integration; create real-time data visibility and access; easily connect to bioprocessing data; track sample consent; provide intuitive search and discovery of critical sample intelligence; access data services; and easily create custom reporting.

LabAnswer has partnered with Denodo and BioStorage Technologies, Inc., to implement a groundbreaking platform to enable sample intelligence through data virtualization technology.

ABOUT DENODO TECHNOLOGIES

Denodo Technologies, the recognized innovator of Data Virtualization technology has been recognized and awarded for its technology from a variety of media outlets and industry organizations.

ABOUT BIOSTORAGE TECHNOLOGIES, INC.

BioStorage Technologies, Inc., is a global comprehensive sample management solutions company that provides information intelligence on the lifecycle management of research samples across all phases of drug development. ISIDOR® technology solutions delivers to research organizations a holistic and virtualized "Single Global View" of sample inventory data with associated research data across multiple geographies, databases and R&D service providers with minimal replication to preserve privacy.

Clinical

"In response to an increasing array of cost-reduction initiatives, efficiency objectives and safety drivers from the commercial, regulatory, and patient sectors, clinical research organizations are embracing improvements in sample management intelligence.

Data virtualization applied to sample management datasets enables these organizations to elevate sample data from a commodity view into a more strategic, reusable, and valuable scientific asset.

By providing the flexibility needed to unify data, creating easy access to the data, and migrating all of the pertinent information together in a secure manner, life sciences and clinical research organizations can accelerate their drug development and research needs."

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