

Unified Intelligence Insights

Accelerating Research with Self-service Access for Clinical Data Exploration

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Hugh Cruse
 Manager Information Technology
 H. Lee Moffitt Cancer Center
 Tampa, FL

H. Lee Moffitt Cancer Center & Research Institute (Moffitt) in Tampa, FL, is a not-for-profit National Cancer Institute Comprehensive Cancer Center—a designation reserved for institutions that are dedicated to scientific innovation and research excellence for the advancement of oncology care. Moffitt is developing a new care delivery paradigm, Moffitt Total Cancer Care (TCC), which seeks to facilitate clinical trials with the use of biomarkers and evidence-based guidelines to personalize cancer care. Paramount to this effort was the creation of a powerful data aggregation tool used by researchers to explore vast quantities of genomic, proteomic, bio-specimen, imaging and clinical data in a self-service model.

Data Exploration

Translational research is an iterative process through which questions yield answers that lead to more questions. Researchers need flexible tools which allow them to follow the data and perform “what if” scenarios without making new requests of their information technology (IT) services. Typical data warehousing and business intelligence tools designed for enterprise reporting and “dashboard” views work best when organizations understand their data needs prior to system design so that static data structures and relationships can be established. Once built, reporting systems produce somewhat rigid results for predefined queries. In cancer research, the questions—let alone the answers—which will lead to the next great breakthrough are not yet known. Researchers require flexible tools which give them the freedom to explore, not just analyze data

Spanning the Gap

Moffitt began by developing a strategic data warehouse containing data from different operational systems along with a series of data marts. This system enabled Moffitt’s enterprise analytics but failed to adequately address the needs of the research staff. In the early days of TCC, Moffitt realized that the constant flow of query requests from the researchers would require additional IT staff. Alternatively, Moffitt instead offered Microsoft® Amalga™ Unified Intelligence System (UIS) 2009 to support a “self-service based model” where researchers could explore data without the need for customized queries or reports.

Accelerating the Speed of Research

Moffitt’s new strategy now allows a holistic view of the data within which researchers can explore. Rather than writing an ever-expanding number of queries, IT dedicates minimal time to grouping data into “base views” for researchers to manipulate in search of answers. In this way, Moffitt sees several benefits:

- Researchers may access combined views of data from different systems in a single, easy-to-use tool.
- Flexible self-service exploration can accommodate “what if” scenarios
- IT staff is not relied on for each new query – allowing for innovative lines of questioning.
- Researchers gain easy access to data essential for research grant applications.
- Receive ensures secure, HIPAA-compliant access to de-identified data through role-based permission.
- Frees up IT resources to tackle broader data hurdles in source systems
- Gain critical context via metadata for universal understanding of data elements, eliminating the need for staff to provide ad hoc translation services.

A Conversation With Hugh Cruse, Manager of Information Technology, Moffitt Cancer Center

Hugh Cruse is the manager of Information Technology Development at Moffitt Cancer Center and Research Institute. He has been intricately involved in leveraging Microsoft Amalga UIS as a self-service model for enterprise-wide health data. The solution has had positive effects on IT resource allocation and the acceleration of research.

Q: What makes the data needs of cancer researchers unique?

Cruse: Our researchers don't just need to access data, they need to explore data. They can't come to us with a single query that anticipates all their research needs. They need the data to be accessible to make something of the analysis rather than a limit of set choices as final products. It would be like going to a restaurant with no menu—they need to see what is available so they can dig around, ask questions, and follow clinical leads. With Amalga UIS the users modify, filter and sort the data they need when they need it.

Q: You mentioned that Moffitt already used data warehousing before implementing a unified solution. What does Amalga UIS offer that the warehouse did not?

Cruse: Our data warehouse and business intelligence tools are meant for queries based on static hierarchies. They are not flexible enough for a research environment. The process was too slow and cumbersome. Put it this way, if I were traveling to New York tomorrow I could take a plane or ride a bicycle. Both will get me there but only one will get me there tomorrow. Cancer research is a race against time and Amalga UIS is accelerating our capabilities.

Q: How has Amalga impacted the demands on IT resources?

Cruse: When we implemented the data warehouse we recognized that additional staff would be needed for business intelligence query requests. But as we shifted gears to incorporate Amalga UIS we could see that we no longer needed to carry that large of a staff to support our users. Now, the IT staff is focused on the processes in our environment that don't collect data cleanly or are hampered by limitations of data and cultural change. I see us as a more responsive team addressing mission-critical projects.

Q: How does Amalga UIS enable self-service access to your data?

Cruse: Amalga UIS aggregates data from multiple systems in addition to our data warehouse. IT designs base views into the data which can then be accessed and manipulated directly by the users. Consider Amalga UIS the data workshop—designed for hands on work—whereas the warehouse is a final repository for enterprise analytics.

Q: With so many data sources feeding Amalga UIS and so many uses of the data, how do individuals know what the data represents?

Cruse: One of the greatest strengths of the unified intelligence concept is the manner in which it tags all data elements with metadata explaining its origin. We at Moffitt are going even further to create an additional data dictionary to further facilitate the self-service model. In the past, individuals at Moffitt had to act as information gatekeepers, providing translation of various data as needed. But when these individuals leave and the information is not documented, the organization is hurt. The ability to annotate meta data in Amalga UIS does a better job for Moffitt in the long run.

Q: Do you see the need for flexible self-service based model outside of research?

Cruse: I think our researchers are not unique in needing more flexible data tools – it's a new paradigm but I think many stakeholders in healthcare are beginning to see the power of data exploration. Amalga UIS is perfectly suited for healthcare. Warehousing tools work really well in highly structured industries like finance where concrete measurements of currency and time fit into rigid structures. The breadth of data in healthcare is not so easily quantified or related. Amalga UIS helps us harness all of that data not only, by letting the domain expert use the data in ways not conceived, but also in a controlled manner so as not to violate data relationships or compromise security