



Merck Healthcare Transforms Research Collaboration with Secure Digital Workspaces

Merck Healthcare continuously seeks new ways to innovate, working with contract research organizations worldwide. Effective collaboration with these partners depends on rapid, robust, and secure data sharing between multiple global teams. By deploying secure workspaces within Revvity Signals Notebook, Merck Healthcare has streamlined data exchange, enhanced collaboration, and helped to accelerate drug discovery.

- Eliminated delays with real-time access to external research progress.
- Bridged internal and external workflows through standardized documentation.
- Accelerated research cycles and enabled faster decision-making.

Merck Healthcare, a division of Merck Group, Germany, is dedicated to advancing human health across multiple therapeutic areas, including oncology, neurology, immunology, fertility, and endocrinology. With a rich history dating back to 1668, Merck operates globally, employing more than 64,000 people spanning 70 countries, all on a collective mission to improve lives worldwide.

Fostering Collaboration between Internal and External Research

Renowned for its contributions to pharmaceutical innovation, Merck Healthcare combines cutting-edge research with advanced technology to develop transformative therapies. As a key to its success, Merck Healthcare recognizes that research breakthroughs stem from fruitful collaborations not only within its own scientific teams, but also with external contract research organizations (CROs).

However, collaborating with CROs created unique challenges in the past. For example, CROs documented experiments in their own systems, transferring data to Merck Healthcare only at the conclusion of a project or phase. Vital information often arrived weeks or months after the work had been conducted, delaying decisions and extending research timelines. In many cases, discrepancies or missing details in the data would lead to prolonged enquiry and resolution processes that further slowed progress.

Additionally, the variability in documentation quality across CROs presented a major hurdle. While Merck Healthcare’s internal teams benefited from an advanced electronic laboratory notebook (ELN) system that ensured reproducibility and streamlined documentation, external partners operated independently. Differences in data formats, varying levels of detail, and inconsistent adherence to best practices created challenges when integrating external research into Merck Healthcare’s systems. The increased work burden on internal teams to resolve data issues tended to heighten the risk of misinterpretation or incomplete understanding of external work.

“When unexpected results arise in our internal experiments, we can quickly trace back through our ELN to uncover the details and conditions,” explains Jörg Kuharev, Principal Data Scientist at Merck Healthcare. “But with external research, we face delays. Back-and-forth communication with CROs to obtain additional context or clarify data adds unnecessary complexity to the process.”

Merck Healthcare sought a way to integrate external research directly into its systems. This was not an easy ask: any solution would have to uphold the company’s stringent standards for data quality, intellectual property (IP) protection, and reproducibility, while simultaneously fostering easier collaboration between internal and external teams.

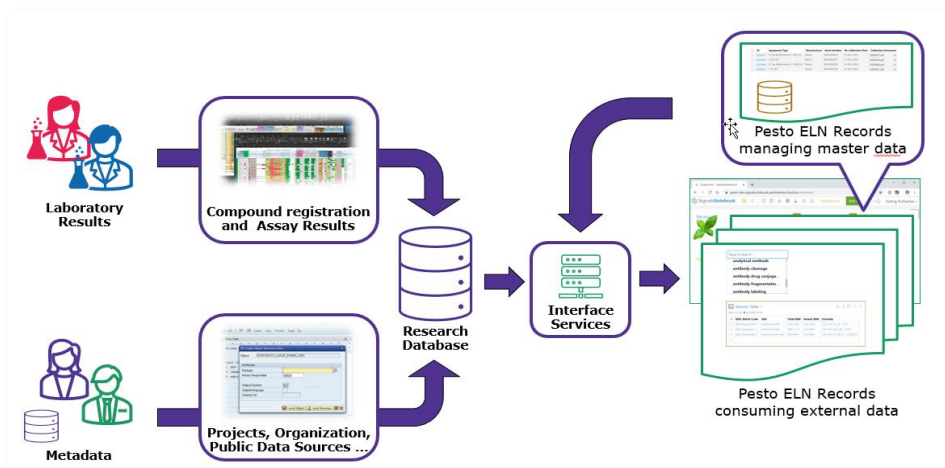


Figure 1- Integration of Signals Notebook with Research Data and Application Landscape

Sharing Data Securely and in Real Time

To address its external collaboration challenges, Merck Healthcare took the dramatic step of enabling CROs to document experiments directly within the company's own ELN: Signals Notebook. This innovative approach transformed the way Merck Healthcare collaborates with external partners by streamlining data collection, enhancing visibility into ongoing research, and ensuring that processes meet best-practice documentation standards.

Within Signals Notebook, Merck Healthcare assigns dedicated, isolated workspaces to each CRO to enable continuous collection of experimental data. Sensitive information remains protected, Merck Healthcare's internal teams have read-only access to the workspaces, enabling them to monitor progress, review data in a standardized format, and identify emerging trends without compromising the integrity of the research.

To further streamline data management, Merck Healthcare implemented a metadata-based organization system, which automatically associates data with the correct CRO. The metadata tagging capabilities of Signals Notebook enables Merck Healthcare analysts to locate information rapidly and easily, helping them to focus more effectively on driving innovative research outcomes.

"By integrating CROs directly into our ELN, we've greatly enhanced our collaboration process," says Kuharev. "We no longer face months of delays waiting for critical data. Instead, we have real-time visibility into external research and can ensure that all documentation aligns with our high standards."

Accelerating Research through Seamless Integration

Offering Signals Notebook workspaces to external partners has delivered transformative benefits, streamlining collaboration and driving efficiency across the research pipeline. Previously, inconsistencies in data formats and documentation quality created bottlenecks during review, feedback, and analysis. Enabling access to external data held by the CROs and providing visibility of documentation in real-time have greatly accelerated decision-making, enabling faster progress in key research areas.

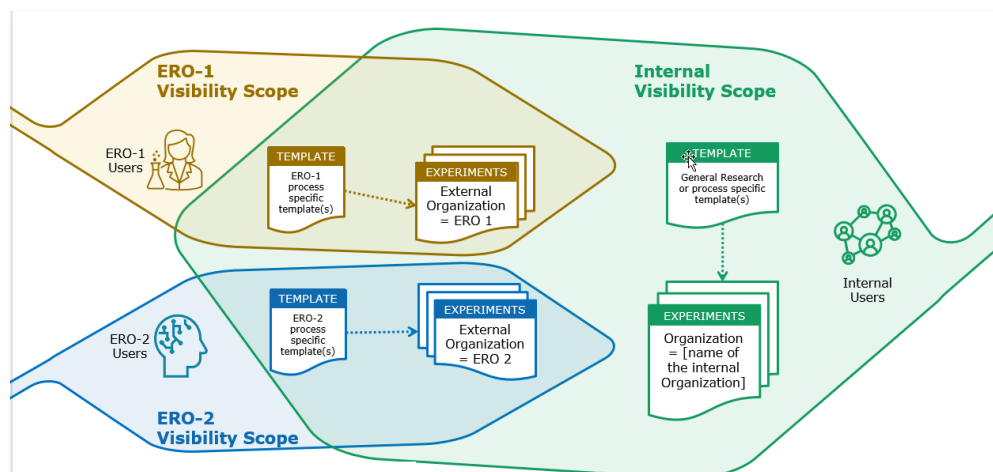


Figure 2 - Organization of templates by meta-data for experiment visibility

With Signals Notebook, partner CROs now adhere to rigorous data and documentation standards, laying the foundations for advanced analytics and data integration, supporting enhanced insights and better-informed decision-making. Shared spaces in Signals Notebook have also significantly strengthened Merck Healthcare’s relationships with its CRO partners. By offering a transparent and collaborative platform that respects IP security while enabling real-time data availability, Merck Healthcare has fostered mutual trust and efficiency. External


partners can now focus on delivering high-quality research, and the internal team no longer spends time on reconciling disparate documentation systems or managing data inconsistencies.

The new approach represents more than just a technological innovation—it is a foundational shift in how Merck Healthcare collaborates with its external partners. By breaking down data silos, enabling real-time visibility, and harmonizing documentation processes, Merck Healthcare has set a new standard for research partnerships and synergies. The new model improves the speed and quality of discovery, and positions the company for future innovations in pharmaceutical research.


“As we build on this foundation, we’re not just advancing science—we’re unlocking new opportunities for collaboration and discovery,” Kuharev concludes. “This approach ensures that we remain at the forefront of innovation, creating better outcomes for patients and partners alike.”




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