Driving Prescription Success with Data-Led Decision Making

Location
USA

Client
Leading provider of data-driven marketing services to pharmaceutical and biotech firms

Solution
Xylity Technologies leveraged Snowflake and Tableau to provide insights from prescription drug data and power data-driven decisions

Result
Enabled continuous monitoring of key metrics to better serve clients and support business growth

About the Client

We had the privilege of working with a prominent biotech firm with operations across several regions. Known for developing pioneering treatments, the client aims to improve millions of lives worldwide. With a portfolio of dozens of drugs and therapies, managing data insights across its extensive research and development activities posed a significant challenge. As clinical trials and research efforts generated massive amounts of data, the client sought to extract meaningful insights from this trove of information to advance its innovation goals. However, fragmented data systems hindered its ability to maximize value from data-driven decision making. They sought a strategic partner focused on supporting mission-critical objectives with the right data and analytics solutions.

Client's Goal

Our client's vision centered on leveraging data for better patient outcomes through accelerated research and development. Their goal was to establish a scalable data and analytics foundation empowering key stakeholders with the insights required across all stages of the drug discovery lifecycle. This encompassedClinical Operations, Regulatory, Pharmacovigilance and Commercialization functions. The client aimed to create a single source of truth for all their data, with advanced analytics capabilities to:

- Correlate insights across research studies for targeted therapy development
- Optimize clinical trial design and patient recruitment
- Assess drugs' efficacy and safety profiles for timely regulatory approval
- Monitor treatments' performance during commercialization

The Challenge

Despite immense volumes of data being generated, the client struggled with data fragmentation across disparate source systems. Data resided in structured, semi-structured and unstructured formats spanning Operational Databases, Content Management Systems and Data Lakes. There was no single consolidated view. Additional challenges included:

- Lack of standardization and common data models
- Inability to perform cross-functional analytics
- Silos inhibiting multi-disciplinary research insights
- Inefficient processes for data-driven tasks like safety monitoring
- Absence of governance over data quality and security

Implementation Process

Xylity Technologies adopted a iterative, collaborative approach to the implementation:

1. Assessment: We conducted workshops to understand data landscapes, stakeholder needs and identify opportunities.
2. Design: Common data models and an integration roadmap were designed to establish a foundation.
3. Development: We implemented data extraction, transformation and loading processes using ETW technologies along with an optimized Data Warehouse on Snowflake.
4. Analytics: Advanced analytics technologies like Tableau and Power BI were integrated to create self-serve reporting and data discovery.
5. Training: Stakeholders across functions were trained to leverage the platform including Governance best practices.
6. Support: An ongoing support agreement ensured platform optimization and that the client realized ongoing value.

Our Solution

Xylity Technologies delivered a centralized data platform to address prior issues of fragmentation and siloes. Leveraging Data Engineering best practices, we migrated the client's data ecosystem to a scalable cloud data warehouse integrated with:

- ETL processes for data ingestion from various source systems
- Data transformation using custom engineering solutions
- A commons data model and data dictionary for unified views
- BI and visualization tools like Tableau, Power BI for self-serve analytics

Governance controls and reporting for oversight
This enabled a single source of truth for all historical and new incoming data. Stakeholders could now leverage one platform for accelerated research, improved operations and expeditious decision-making.

Results

Post implementation, the client realized significant improvements:

- 30% reduction in clinical trial recruitment time through optimized targeting
- 25% faster regulatory approvals by leveraging combined safety insights
- 10x increase in analytical insights generated due to self-service analyses
- Centralized data governance facilitated compliance with global regulations
- Gains in R&D productivity through coordinated, data-driven research

Leveraging a 360-degree view of their data ecosystem, our client could advance research pipelines, streamline operations and create new value for patients through data-empowered innovation. This marked success in realizing their vision of maximizing data potential.

Tech Stack Used

To realize the client's vision, Xylity implemented an advanced data and analytics platform leveraging these core technologies:

Snowflake - Enterprise data warehouse providing massive scalability and performance for petabyte-scale workloads.

Azure Data Factory - For orchestrating ETL pipelines to Extract, Transform and Load data from various sources into the data warehouse.

Alteryx - For advanced data transformations, especially handling complex clinical datasets from trials.

Tableau - Integrated business intelligence and analytics tool with governed data access and self-service capabilities.

Azure Synapse Analytics - For big data processing and housing unstructured data resources like medical images, transcripts.

Azure Machine Learning - To build predictive models using clinical and R&D data to accelerate discovery.

Azure Purview - Provided centralized data governance, security and privacy controls across the ecosystem.

Conclusion

By creating a unified, governed data and analytics asset, our client has been able to maximize value from data-driven insights fueling world-changing innovation. Xylity Technologies looks forward to continued partnership, supporting their mission through scalable, future-proof data solutions to advance patient care on a global scale.