Revolutionizing Data Insights for Centralized Healthcare Management Company **using** Power BI and Tableau

Location
USA

Client
Centralized Healthcare Management Company

Solution
Xylity implemented a data warehousing and business intelligence solution using Power BI and Tableau to provide real-time insights and help optimize operations.

Result
Increased data-driven decision making, improved processes and operational efficiencies leading to competitive advantage.

About the Client

Silos of data residing in disconnected systems made iThe client is a large centralized healthcare management company based in the United States, providing support services to over 50 affiliated hospitals, nursing homes, insurance companies, and clinics across 15 states.

As the parent organization, they manage key shared functions for all entities like financial reporting, supply chain, compliance, IT infrastructure, marketing, and business development. With a growing portfolio and patient base of over 2 million served annually, healthcare delivery has become more complex.

Data was being generated from varied sources like EHR systems, insurance claims, supply usage, patient feedback and more. However, leveraging this wealth of information effectively for strategic decision making was a challenge due to the lack of a consolidated analytics platform.

t difficult to extract valuable insights and benchmark performance. The client envisioned establishing a data driven culture and transforming into an intelligent enterprise through harnessing the power of analytics.

They engaged Xylity to unify their data ecosystem and provide tools enabling executive accessibility to insights for improved outcomes.

Client's Goal

The client wanted to establish a single source of truth for data across their portfolio of diverse healthcare organizations. Their goal was to gain a holistic view of operations through consolidated reporting and sophisticated analytics. This would facilitate proactive management of performance, resource optimization, and strategic planning to enhance quality of care delivery while reducing costs.

The Challenge

The client's vision was to become a data-driven healthcare enterprise. Their strategic goals included:

Establish a centralized data repository integrating all data sources from affiliated organizations

Create a single source of truth to power analytics and business intelligence

Facilitate benchmarking and performance comparison across:
   Facilities
   Regions
   Specialties

Gain insights to:
   Optimize resource utilization
   Identify inefficiencies and areas for cost reductions
   Assess quality measures
   Predict future trends

Enable data-driven decision making through:
   Real-time reporting and dashboards
   Advanced visualization and exploration capabilities
   "What-if" scenario modeling

Streamline operations through:
   Proactive issue identification
   Collaborative strategies for continual improvement

Improve patient outcomes while reducing costs through evidence-based management

The overarching goal was to transform into an intelligent, analytics-driven organization.

Implementation Process

To implement the integrated analytics solution, our team followed a structured methodology:

Discovery – We conducted workshops to understand current processes, pain points and requirements. Key stakeholders from multiple departments provided inputs.

Blueprinting – The solution architecture was designed considering the identified needs, data landscape and future roadmap. This included conceptual, logical and physical data models.

Development – We established the centralized data warehouse on a cloud-based Azure SQL Data Warehouse for scalability. ETL pipelines were built using Azure Data Factory to facilitate ongoing data refreshes.

Deployment – Power BI provided self-service reporting and dashboard capabilities. Tableau empowered data exploration and visualization. Tools were deployed on a secure private cloud.

Onboarding – Comprehensive training sessions helped users learn navigation, basic reporting, advanced analytics and administration. Documentation portals hosted SOPs and help guides.

Configuration – Governance policies like row-level security and data access were implemented. Automated alerts ensured proactive issue resolution.

Optimization – Ingesting additional datasets and customizing existing reports expanded the solution over time based on emerging needs.

Support – Dedicated resources provided post-go-live support including monitoring system health and addressing incidents. Periodic reviews improved efficiency.

Change Management – Stakeholder communication and adoption drives promoted analytics as a core organizational competency enhancing decision making.

The phased implementation approach ensured solution, organization and people readiness at every stage.

Our Solution

The integrated solutions architecture comprised key technology components to ensure scalability, flexibility and real-time insights. At the core was an Azure SQL Data Warehouse deployed on the Microsoft Azure cloud platform, which served as the centralized data repository.

It provided the ability to process vast amounts of transactional and historical data in a fully managed cloud database with integrated business intelligence tools. Azure Data Factory was leveraged to build automated and recurring ETL pipelines that consolidated data from multiple disparate source systems into standardized formats within the data warehouse.

For self-service business intelligence and interactive analytics, the solution utilized Power BI. Within Power BI, internal users were enabled to easily design and publish customizable reports and interactive dashboards.

Pre-configured dashboard tiles, scorecards and KPIs provided contextual overviews of key performance metrics. Deployment across desktop, web and mobile facilitated access anywhere on any device. Tableau complemented this with its advanced data preparation and visualization capabilities. Users gained actionable insights through interactive dashboards, geospatial views, trend analysis and the ability to conduct rapid "what-if" scenario modeling which paved the way for continuous optimization. Governance controls ensured data security and quality.

Robust role-based access and activity logging enforced compliance and privacy. Usage metrics from monitoring solutions allowed performance tuning, optimizations and faster issue resolutions. Regular model refreshes kept insights up-to-date.

Overall, this integrated hybrid cloud data and analytics platform supported the organization's transition to a data-driven operating model.

Result

Key benefits included:

Increased data-driven decision making across 50+ organizations
Proactive identification of:
Operational issues
Waste and variations
Outlier performances

Insights driving:
10% increase in patient satisfaction scores
5% reduction in readmission rates
7% decrease in average length of stay

$3M+ annual savings through resource optimization
Increased collaboration and benchmarking amongst departments

Continual improvement through:
Best practice sharing
Strategic planning
Risk mitigation

A centralized analytics culture empowered teams to deliver higher quality care at lower costs through evidence-based management. Ongoing enhancements ensured the organization remained ahead of the curve in a fast-evolving industry.

Tech Stack Used

The integrated solution leveraged:

Azure SQL Data Warehouse
Centralized data storage and processing

Power BI
Self-service reporting
Interactive dashboards

Tableau
Advanced visualizations
Interactive dashboards
Exploratory scenarios

Azure Data Factory
Orchestrating ETL processes

Azure Blob Storage
Scalable data storage

Azure Pipelines
Automated deployments

Azure Monitor
Performance monitoring

Application Insights
Usage analytics

This hybrid cloud-based data and analytics platform supported scalability, flexibility and continuous insights.

Conclusion

By implementing cutting-edge data warehousing, business intelligence and analytical capabilities, Xylity helped the client transform data-driven decision making. Access to integrated, governed and actionable insights equipped teams to enhance performance, streamline processes and proactively address challenges - gaining competitive differentiation in a changing industry landscape. Are you looking to leverage analytics for improved performance? Contact us today to discuss how we can partner to transform your organization through data.