

CASE STUDY

50% FASTER CUSTOMER ONBOARDING WITH SCALABLE INTELLIGENCE ON OMNICHANNEL INTERACTIONS

ENABLED BY A MODULAR MULTI-TENANT COMMERCIAL DATA LAKE
SOLUTION WITH REAL-TIME ANALYTICS



A Data Lake is a large body of stored data, cleansed, packaged, and ready for use. The contents of the data lake stream in from different sources to fill the lake, and various users of the lake can consume the data for varying requirements.¹

INTRODUCTION

A growing need for faster access to clean data has transformed data management as rapidly emerging use cases connected to new consumption patterns from existing business stakeholders, and new consumers build in today's dynamic business environment. Data Lakes have emerged as a go-to technology, especially in quickly managing unknown use cases without disrupting the ongoing consumption patterns. As data lakes aren't restricted by one controlling structure or schema, supporting new data requirements are simpler and much faster.

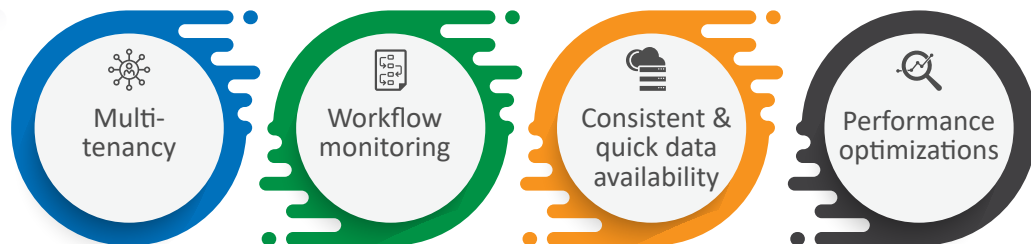


In unprecedented times like in the COVID-19 era, it's even more critical for large enterprises to invest time and focus on the implementation of data lakes, which can lead to significant decision turnaround speed, process efficiency, and cost savings. While most initial deployments of data lakes have been on-premise, cloud-based data lake solutions are now gaining popularity because they enable multi-tenant data lakes. Data lake multi-tenancy is an essential architectural paradigm that 'allows-in' multiple groups of users from different businesses, departments, and processes to access and consume business-relevant data in the lake as per need. This approach makes data management scalable across enterprises and enables swift decision-making.

BUSINESS SCENARIO



With a growing business, a global clinical research organization's requirement for big data management solutions in life sciences commercial operations outcomes reporting was exploding with many stakeholders feeling the need for a faster, multi-user, and dynamic and real-time reporting system. While following an omnichannel marketing approach, their need to track campaign impact, and the 360-degree interactions view increased with a growing customer base. Their ever-growing large-scale disparate production solutions, rising infrastructure costs, was keeping the data engineers and cloud architects on their toes since the systems couldn't handle:



The company's Data Management team was struggling with structural silos due to isolated data stores and massive issues around data ownership. As a result, the client felt the need for a solution, which would:

1. Provide the necessary foundation to clear away the enterprise-wide data access problem at its roots
2. Open the doors to previously unavailable exploratory analysis and data mining
3. Enable new use cases

OBJECTIVE

The Data Management team wanted to create strong foundational capabilities which could onboard multiple data sources, and enable multiple new use cases for downstream business users at the same time and with a multi-tenant commercial data management solution to allow key commercial capabilities, such as:

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- An illustration of a woman in a green top and blue pants sitting on a large, green, stylized clipboard. The clipboard contains a checklist of eight objectives, each preceded by a green checkmark. The woman is holding a large yellow pencil. To the left, another person is shown from behind, also holding a large yellow pencil. To the right, a woman in a blue dress is holding a tablet. The background features large, light green leaves.
- ✓ Conjoined data from disparate systems for faster access
 - ✓ Multi-tenancy to support multiple customers for the same cloud framework
 - ✓ Implementation of metadata quality framework
 - ✓ 2-layered data access to enable data science and analytics
 - ✓ An integrated solution with enterprise-level customer MDM (Master Data Management) systems
 - ✓ Enable users to perform self-serve analytics through a BYOD (Bring Your Own Data) capability
 - ✓ Sync capability for various CRMs, contact centers, and cloud systems
 - ✓ Augment an enterprise data warehouse to support reporting and self-service BI (Business Intelligence) requirements

APPROACH

After a simple business consultation with the company's data management team, business users, and sponsors, Axtria implemented a **multi-tenant data lake** solution to serve all the data curation and integration needs.

The design patterns considered during the solution's architecture were:



1. Infrastructure Consolidation:

- Cloud infrastructure
- Local segregation
- Multi-tenancy security considerations
- Multi-customers onboarding and sharing capability

2. Cloud Automation & Integration:

- Automated job processing to enable exploratory zone for all customers
- Baselined simple customer onboarding/off-boarding process to enable customization flexibility
- The process orchestration was controlled through Microsoft Azure
- Other process automation services were used as well

3. Security Layer:

- Data files & processing results stored in separate tenant-specific containers, along with role-based access controls
- Additional secure data encryption layer

4. Scalable Metadata Quality Framework:

- Implementation of automated metadata-driven quality framework to enable faster customer onboarding process (this also managed the data quality and business rules configuration to ensure cleaner data)

To meet the exploratory analysis requirement, Axtria designed an "Exploratory Zone" within the data lake, which contained logically separated data containers for the two data layers. The Exploratory Zone had the BYOD (Bring Your Own Data) capability, which enabled ad-hoc data loads and analysis by end-users. Some salient features of the two data layers were:

LAYER TYPE 1

- Unchangeable data with historical references
- True-to-source data, along with audit columns for data lake tracking
- Optimal output formats for efficient performance
- Date-wise partitions for data retention and implementation
- Multi-tenancy support to enable data analysis for authorized users

LAYER TYPE 2

- Support for user queries and exploratory analysis on cleaner data
- Integration with data exploration and ML (Machine Learning) tools
- Support for data extract requirements for all downstream systems

To serve specific business use cases on data marts and other reporting requirements, data warehouses still hold importance. Axtria's data lake solution acknowledged this by supporting future data marts & reporting requirements. Overall, the solution integrated with the client's enterprise customer MDM solution to support a single view of all customers.



BENEFITS

- **Business expansion support:** A provision to onboard ~30 life sciences customers at once
- **Omnichannel Effectiveness:** 360-degree view of omnichannel interactions, eliminating the need for multichannel campaign evaluation
- **Faster decision-making:** 50% faster new customer onboarding with the multi-tenant commercial data lake solution
- **Real-time actionable insights:** The data lake took advantage of large quantities of consistent data and deep learning algorithms
- **Future scalability:** A modular solution to meet the future BI requirements (including self-service BI)
- **Data accuracy:** Ready integration with client's master data solution for analysis at a singular level of customers

CONCLUSION

When designed and implemented with innovation, data lakes eradicate issues like data silos and inconsistency. They enable flexible enterprise-level exploration and data mining capabilities. Companies can gain the ability to onboard diverse users and analyze data for different customers from one standard layer without worrying about data leakage. Data lakes are essential to harvest big enterprise data as a core asset, to extract model-based insights, and support the growth of a culture of data-driven decision making.

REFERENCES

1. Forbes: "What Is A Data Lake? A Super-Simple Explanation For Anyone," available at <https://www.forbes.com/sites/bernardmarr/2018/08/27/what-is-a-data-lake-a-super-simple-explanation-for-anyone/#5f19b6276e00>

Founded in 2010, Axtria is a global provider of cloud software and data analytics to the Life Sciences industry. We help Life Sciences companies transform the product commercialization journey to drive sales growth and improve healthcare outcomes for patients. We continue to leapfrog competition with platforms that deploy Artificial Intelligence and Machine Learning. Our cloud-based platforms - Axtria DataMAX™, Axtria SalesIQ™, Axtria InsightsMAX™ and Axtria MarketingIQ™ - enable customers to efficiently manage data, leverage data science to deliver insights for sales and marketing planning, and manage end-to-end commercial operations. We help customers in the complete journey from Data to Insights to Operations.

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