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INDUSTRY

Financial Services

PROFILE

Alexforbes is a diversified financial services company founded in 1935, providing a broad range of employee benefit solutions, retirement, healthcare and sustainability consulting as well as investment and wealth management solutions to both corporate clients and individual customers.

Enabling Personalized Data Engagement: Accelerating Intelligence with a GenAI-Powered Solution

With the rising complexity of financial data and the increasing need for real-time insights, financial services firms are turning to AI-driven solutions to remain competitive. Alex Forbes, a leading financial services company listed in South Africa, manages over a million pension fund members monthly while offering investment solutions, financial advising, and insurance services.

To meet growing data demands and enhance operational efficiency, the company sought a GenAI-powered data solution that could centralize data, streamline processes, and support advanced analytics. However, fragmented data sources, usability challenges, and integration bottlenecks hindered progress.

Challenges

Alex Forbes faced several critical roadblocks during its data management and analytics transformation. The company relied heavily on Power BI for critical financial processes, such as broker and member contribution calculations, but struggled with seamless integration and real-time data access.

- Data Fragmentation and Integration Complexity
 - Critical financial calculations depended on Power BI, but backend integration was lacking.
 - Data was fragmented across multiple systems, including a new CRM, making unified data access challenging.
- User Experience Limitations
 - Disjointed system components led to inconsistent and complex interfaces for users across different roles.
 - Non-technical employees struggled with SQL-based queries, limiting their ability to access crucial financial data.
 - With operations across nine countries, the lack of a multilingual, AI-powered customer service interface further hindered seamless interactions, impacting customer experience and real-time decision-making.

■ Initial GenAI Implementation Challenges

- A self-service GenAI solution was being introduced to support frontline customer service agents assisting customers with financial product recommendations based on life changes like job transitions. These agents needed instant access to member history, employment details, and financial records for on-the-spot calculations, but security concerns around data sharing stalled adoption.
- The system relied heavily on large-scale vector databases, requiring substantial computational resources and causing scalability and cost bottlenecks.
- Weak data governance due to reliance on CSV exports, diverse data sources, and third-party tools, resulting in data silos, limited system control and fragmented data management.
- Delays caused by static data processing and third-party tool reliance meant real-time insights were unattainable.

■ Power BI Integration Bottlenecks

- Power BI's lack of seamless integration with backend systems limited its ability to retrieve real-time financial data, making business-critical calculations like broker and member contributions difficult to manage.

The Solution

To overcome these challenges, Alex Forbes implemented Denodo's data fabric, a logical data management platform that resolved governance issues, eliminated silos, and enabled secure, real-time data access across platforms.

To further enhance accessibility and efficiency, Alex Forbes deployed Denodo's AI SDK with Retrieval-Augmented Generation (RAG) to enable natural language queries and metadata-driven intelligence across its financial and operational data sources.

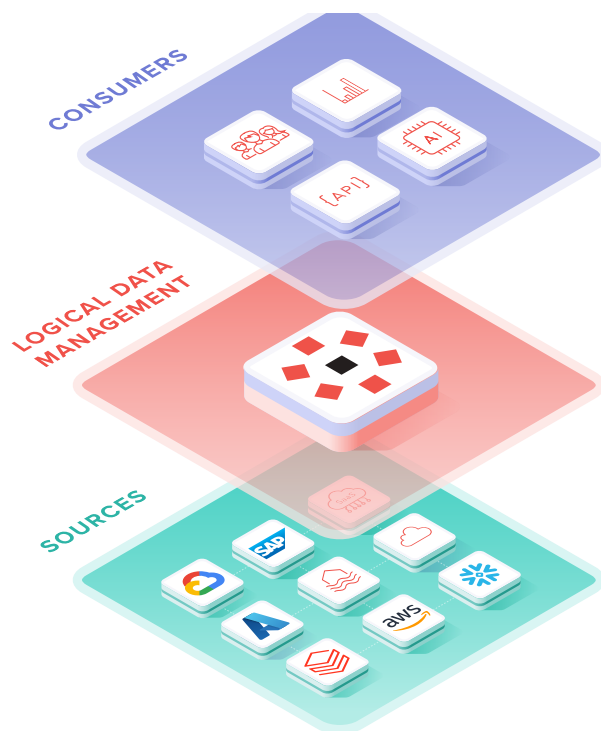
The key components of the solution are:

■ AI-Driven Query Processing:

- Natural language queries are processed using Denodo's AI SDK automatically converting user inputs into SQL queries through advanced AI models.
- Contextual metadata is embedded to interpret user intent accurately, ensuring precise query execution.
- Denodo's Query RAG indexes only metadata rather than entire datasets, enabling efficient searches across the vector database and improving search efficiency without exposing sensitive financial data.
- SQL statements are executed in the Denodo engine, retrieving accurate results while preserving data integrity and enforcing the data access policies defined centrally at the logical data fabric level.
- Final responses are returned in natural language augmented by the LLM, allowing users to interact seamlessly in various supported languages.

■ Power BI Widget Integration:

- To enhance user accessibility at Alex Forbes, Denodo developed a custom Power BI widget using the AI SDK and the Power BI Extension Development Kit. This widget allowed users to submit natural language queries, retrieve real-time insights, and execute complex SQL statements without manual intervention.



- Metadata-Driven Query Optimization:
 - Metadata descriptions are continuously refined based on system usage patterns, improving data retrieval accuracy.

Benefits

The implemented solution delivered significant business and technical improvements:

- Real-time financial calculations improved broker and member contribution management, reducing operational delays.
- Distinctive RAG Implementation: A More Efficient Approach to GenAI
 - Unlike hyperscaler-based solutions that require embedding entire datasets into vector databases, Denodo's metadata-driven approach eliminated the need for large-scale vector storage. Only the metadata needed to be vectorized, in order for the LLM to generate queries for the correct data across numerous back-end systems.
 - This reduced computational overhead, ensured real-time data freshness, and minimized hallucinations by retrieving data directly from live sources rather than relying on outdated embeddings.
 - Denodo's Query RAG offered scalability without compromising on governance or real-time query accuracy, differentiating it as a future-ready enterprise solution. Denodo's data fabric automatically optimized queries for performance and cost management, ensuring Alex Forbes could scale its GenAI workloads without compromising performance and cost SLAs.
- Natural language querying simplified data retrieval, making critical information accessible even to non-technical users.
- Enabling a Persona-Driven Design Experience
 - Tailored interfaces for business execs, Power BI users, and SQL users supported personalized data engagement models.
 - Ability to support multilingual query execution, enabling users working across diverse geographies.

By implementing Denodo's data fabric and AI SDK, Alex Forbes successfully modernized its data infrastructure, improved operational efficiency, and accelerated intelligence production through metadata-driven GenAI solutions.

With seamless natural language queries, real-time Power BI integration, and enhanced governance, Alex Forbes unlocked new levels of efficiency offering enhanced member experience.

