ATSCALE

The Power of the Semantic Layer in Retail

The retail industry is navigating a transformative period marked by the rapid growth of e-commerce, evolving consumer expectations, supply chain disruptions, and the pressures of economic uncertainty. Customers now demand seamless, personalized experiences across online and offline channels, while retailers face increasing competition and shrinking profit margins. To thrive in this fast-paced environment, businesses must harness the full potential of their data to make timely, data-driven decisions.

However, achieving this goal is far from simple. Massive, fragmented datasets characterize the retail landscape spread across point-of-sale (POS) systems, customer relationship management (CRM) platforms, supply chain databases, and e-commerce platforms. These challenges are compounded by frequent shifts in consumer behavior, seasonal demand spikes, and the rising importance of sustainability in inventory and supply chain management. As a result, retailers need solutions that simplify data complexity, improve agility, and enable real-time insights.

Leading retailers are adopting semantic layers to address these challenges—a groundbreaking technology that unifies and simplifies data access. Semantic layers empower businesses to extract actionable insights from complex datasets, driving innovation and efficiency across the organization.

A semantic layer is a business representation of data that helps executives, business stakeholders, and analysts get trusted results from their data using commonly understood terms like "product", "customer," and "revenue". The result is a unified and consolidated view of data across an organization.

Retailers leverage a semantic layer to instill trust in Generative AI and analytics-driven KPIs. A semantic layer can yield:

$2 MM
Analytics project cost savings

3X ROI
IT investments

How retailers use a semantic layer:

- **Real-time Customer 360:** Combine data from POS, CRM, e-commerce, and marketing systems to create a comprehensive view of each customer.

- **Inventory Optimization:** Integrate inventory data with sales trends to accurately forecast demand and optimize stock levels.

- **Sales Performance Deep Dive:** Analyze sales data by region, product, store, and period to track KPIs and identify growth opportunities.

- **Marketing Campaign ROI:** Connect marketing data with sales and customer data to measure campaign effectiveness and optimize spend.

Data Challenges in Retail Solved with a Semantic Layer

Retailers face several challenges in managing their data to make data-driven decisions successfully:

Data Silos: Data often resides in separate systems, making it difficult to gain a holistic view of customers, inventory, sales, and marketing efforts.

Complex Data Preparation: Transforming raw data into insights requires significant time and technical expertise.

Inconsistent Reporting: Analyzing data from disparate sources can lead to conflicting conclusions.

The ROI of a Semantic Layer

A semantic layer offers several benefits to retailers, including:

- **Optimized Cloud Costs:** Semantic layers reduce cloud analytics costs by over 3x by optimizing compute usage, improving query performance, eliminating redundant data copies, and streamlining data preparation.

- **Optimized Human Capital Costs:** Using a semantic layer reduces the effort for a typical 1,000-hour analytics project by nearly half. An average organization has 25 such projects annually, estimating savings of $2.3 million annually.

- **Trusted Results through Data Governance:** AtScale's semantic layer delivers result consistency and improves text-to-SQL performance, achieving nearly 100% accuracy by providing analysts and LLMs with a common business language by mapping diverse data into familiar terms like "product," "customer," and "revenue."

- **Accelerated Time to Insights:** Improve query performance by over 4x. Semantic layers simplify and automate data preparation, empowering BI and Generative AI initiatives to uncover insights faster.

Choosing the Right Semantic Layer Solution

When selecting a semantic layer solution, retailers should consider:

- **Universal Compatibility:** Ensure compatibility with various BI and data science tools.

- **Data Abstraction:** Prioritize solutions that abstract data complexities and prevent vendor lock-in.

- **Performance at Scale:** Demand fast query performance, especially for the largest datasets and complex queries.

- **Business-User Focus:** Provide an intuitive experience for non-technical users to access and analyze data with the tool of their choice using common business terminology.

- **Robust Security and Governance:** Integrate with existing security infrastructure and provide data governance at the row and column levels of data.

Related Resources

- Practical Guide to a Semantic Layer
- The Business Impact of Using a Semantic Layer for AI and BI
- Buyer's Guide to a Semantic Layer

ABOUT ATSCALE

AtScale enables smarter data-driven decisions by bridging the gap between data and analytics, simplifying and extending BI and AI capabilities. With its Universal Semantic Layer, AtScale empowers enterprises to create business-friendly data models that ensure consistency and accuracy across analytics tools. With over a decade of innovation, AtScale continues to lead the industry, transforming how enterprises utilize and analyze their data. For more information, please visit www.atscale.com and follow us on LinkedIn.