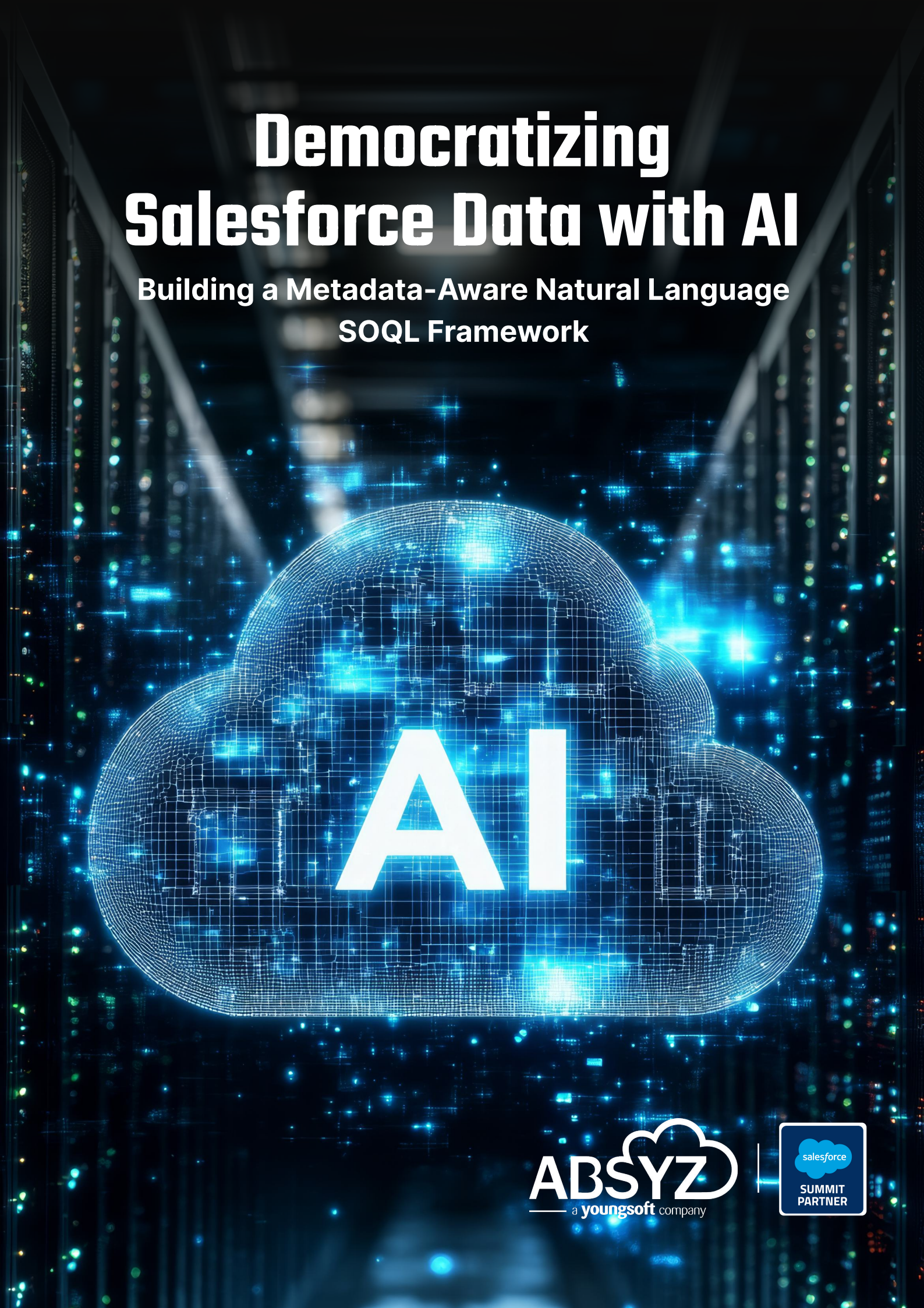
Democratizing Salesforce Data with AI

Building a Metadata-Aware Natural Language SOQL Framework



ABSYZ
a youngsoft company

salesforce
SUMMIT PARTNER

OVERVIEW

Key Project Highlights

Metadata-Aware Translation

Converted natural language requests into complex,schema-valid SOQL queries using real-time Salesforce object and field metadata.

Autonomous Execution Planning

Automatically evaluated query complexity to execute direct, aggregated, or multi-step queries across related objects.

Tri-Mode Output Engine

Delivered flexibility through three output modes: analytical insights, detailed record lists, or dynamic chart visualizations.

Zero-SQL Data Access

Allowed business stakeholders to query Salesforcedata conversationally without relying on BI teams or writing custom reports.

QUICK GLIMPSE

A **leading enterprise organization** reduced its reporting backlogs by implementing an intelligent **LLM-powered Prompt Framework.** By bridging natural language queries with Salesforce metadata, the framework dynamically generates execution plans, constructs accurate SOQL queries, and instantly delivers insights, record lists, or dynamic charts directly to users.



RESULTS

Business Impact

85% Reduction

in routine custom report requests submitted to IT/Sales Ops.

Instant Data Retrieval

converts multi-hour reporting requests into sub-10-second queries.

100% Schema Accuracy

by feeding live object/field metadata to the LLM to prevent hallucinations.

Enhanced Decision Velocity

for non-technical business leaders needing ad-hoc data answers.

PROJECT PROFILE

At a Glance

INDUSTRY	**Cross-Industry / Enterprise Platform Services**
TECHNOLOGY STACK	• Salesforce Platform • LLM Framework • Prompt Builder • SOQL Engine • Apex • LWC Visualization
CLIENT	A major enterprise seeking to empower non-technical business leaders with immediate, conversational access to complex Salesforce CRM data across multiple business units.

THE PROBLEM

The Challenge

While Salesforce stores critical business data, retrieving ad hoc insights requires deep knowledge of SOQL, object relationships, and custom field API names.

The core operational obstacles included:



Reporting Bottlenecks

Business users waited days for IT or Salesforce admins to build custom reports for simple ad hoc data questions.



LLM Hallucinations

Off-the-shelf AI models frequently generated invalid database queries due to a lack of awareness of custom Salesforce object schemas.



Complex Object Relationships

Translating business intent into multi-step or aggregated queries across parent-child objects was too complex for standard text-to-SQL tools.



Fragmented Visualization

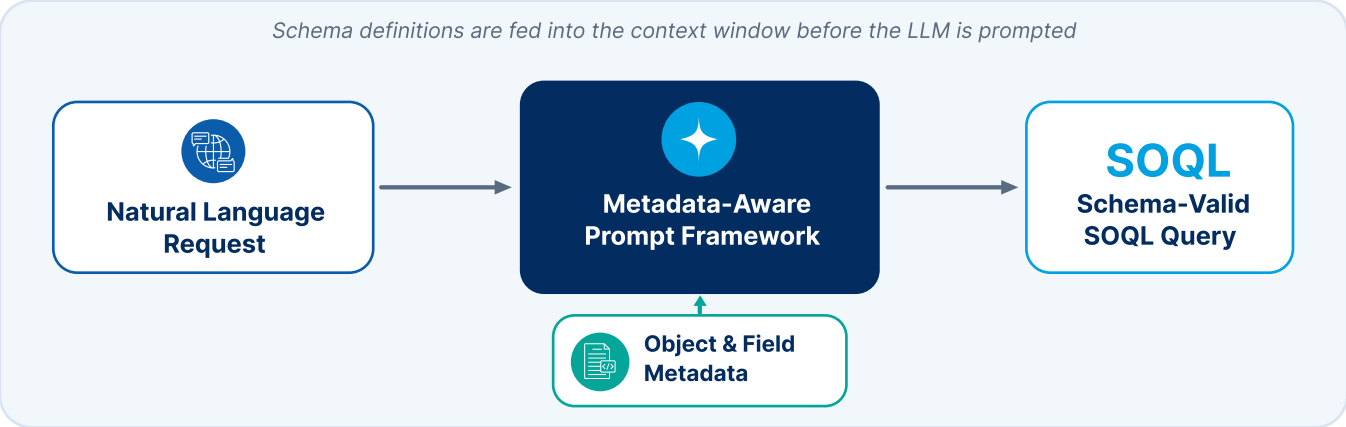
Standard query tools output raw text, forcing users to export data to spreadsheets and build charts manually.

THE SOLUTION

How We Helped

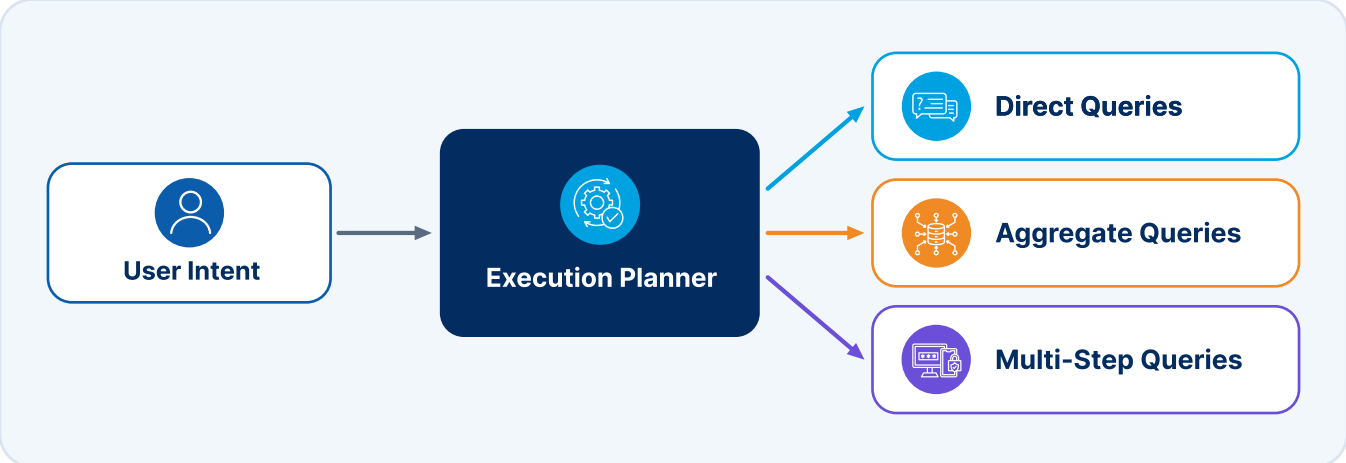
1 Metadata-Aware Prompt Framing

We built an intelligent prompt framework that dynamically inspects Salesforce object and field metadata before prompting the LLM. By feeding schema definitions into the context window, the AI constructs valid SOQL queries tailored to the organization's specific data model.



2 Autonomous Execution Planner

We designed an execution engine that evaluates user intent and determines the optimal query strategy:



Direct Queries

For simple record lookups and filtering.

Aggregate Queries

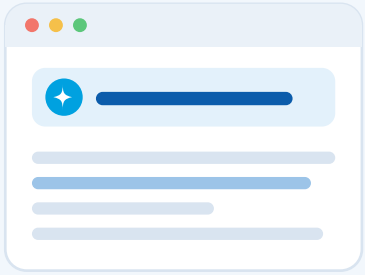
For calculating sums, averages, and group-by metrics.

Multi-Step Queries

For traversing complex parent-child and lookup relationships across multiple Salesforce objects.

3 Tri-Mode Visualization Engine

We implemented a UI layer in Lightning Web Components (LWC) that renders results in three distinct formats based on user preference:



Analysis Mode

Text-based analytical summaries highlighting key findings.



Record Mode

Structured data tables with direct links to Salesforce records.

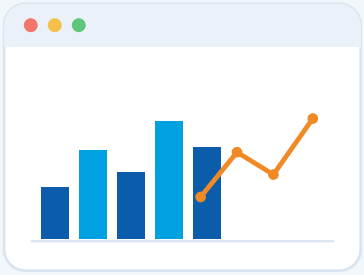


Chart Mode

Automatically rendered bar, line, or pie charts for visual trend analysis.

THE RESULT

The Outcome

TRANSFORMATION

The organization transformed its Salesforce data interaction from a technical barrier into an intuitive conversational experience.

Self-Service Analytics

Business leaders now query real-time operational data using plain English without logging IT tickets.

Guaranteed Data Integrity

Live metadata evaluation ensures 100% syntactically correct SOQL queries without schema errors.

Accelerated Decision-Making

Executives instantly switch between high-level charts, raw record views, and analytical summaries within a single interface.