Data Modeling 2025: Trends & Deep Dive into Snowflake

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Meet your Speakers

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Director of Product Management, erwin DM by Quest. 20+ years of erwin experience. Expert in metadata-driven modeling, product strategy, and data governance innovation.

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Founder, Cloud Data Consulting. Advanced Snowflake Certified Architect with 25+ years of data modeling, dbt/Coalesce workflows, and real-world Snowflake implementations.

Agenda

- 2025 Modeling Trends
- Snowflake – Built for the Data Cloud
- Aubuchon Case Study
- Demo
- Quick update on DM Release 15.0

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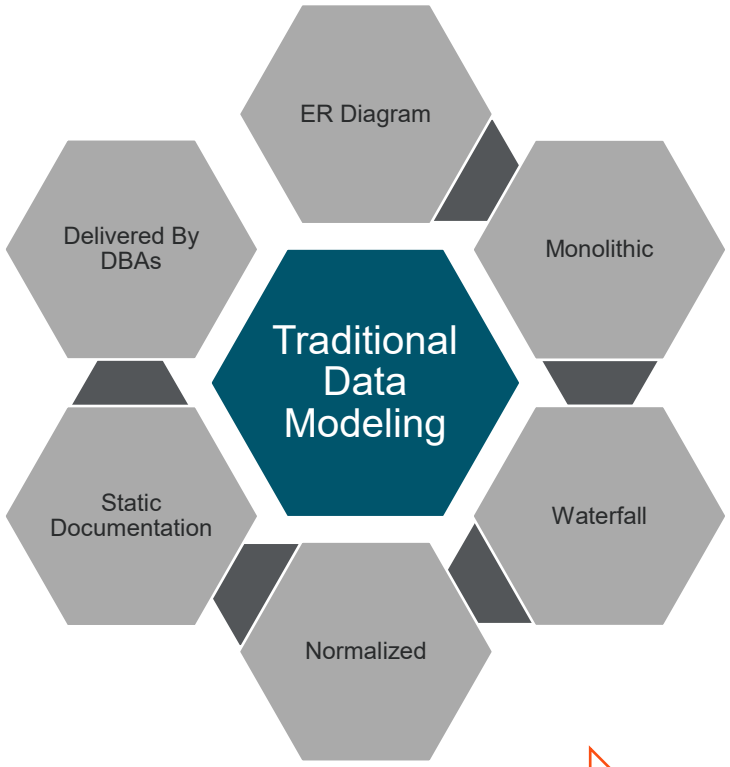
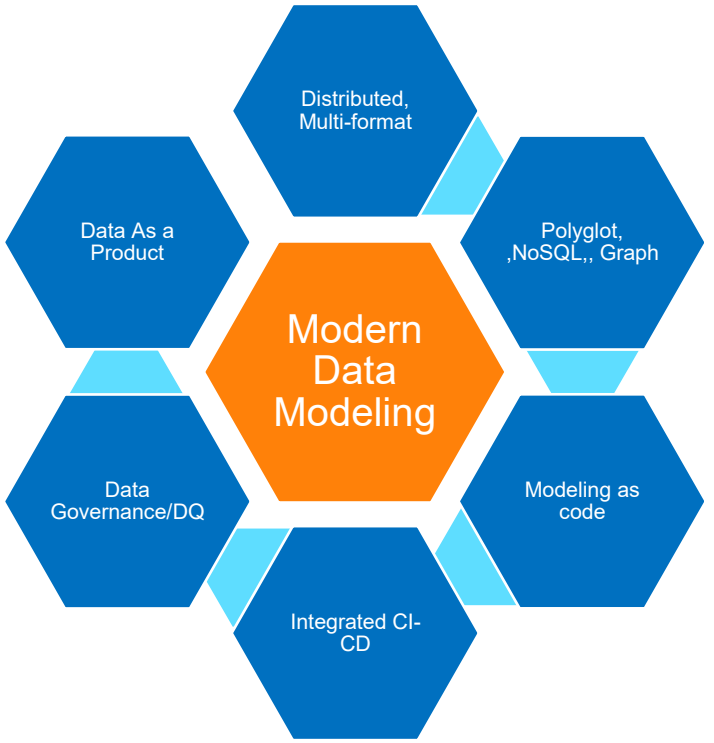
The Evolution of Data Modeling





Data *Storage* Focus

Optimizing storage patterns and normalization for efficient data retrieval

Data *Usage* Focus

Designing for analytical consumption patterns and downstream applications

Data *Product* Focus

Treating data as a product with defined interfaces and ownership

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Trends Continue…

The Rise of Modeling as Code

- **SQL-based transformations** with version control
- **Automated documentation and testing**
- **Seamless Integration** with the systems and pipeline for CI/CD

Enterprise Data Governance & Integration

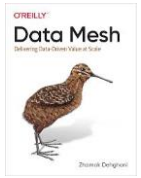
- **Active Metadata Platform:** Treats data models as first-class assets
- **Business Glossary:** linking business Seamless data terms to technical models
- **Powerful connectors:** integration

Specialized Modeling Approaches

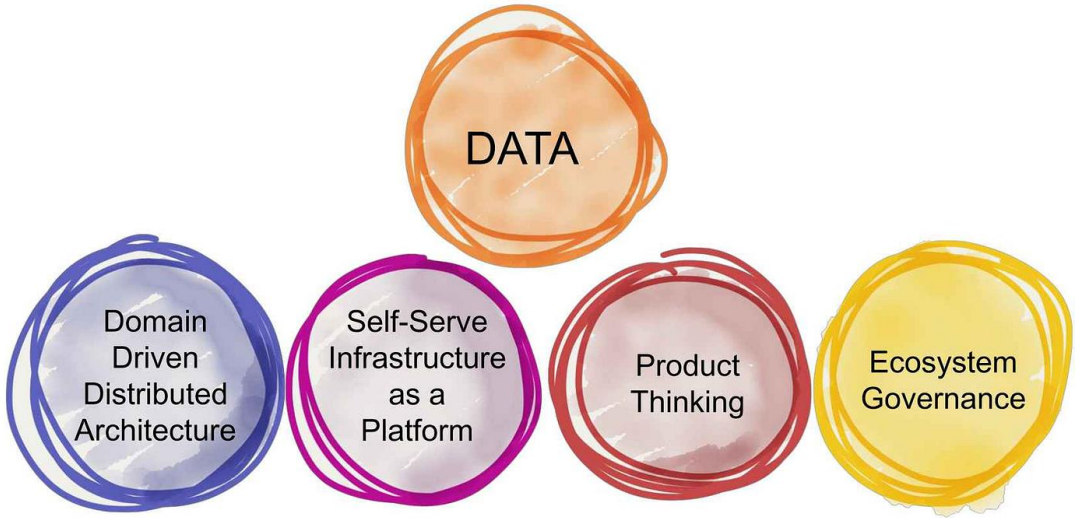
- **DW Modeling:** Focused on data warehouse design
- **Datavault:** Agile, scalable modeling for data warehouses
- **OpenAPI: Modeling**
- **Traditional:** Conventional data modeling techniques

Data Mesh & Data as Product: Modeling Implications

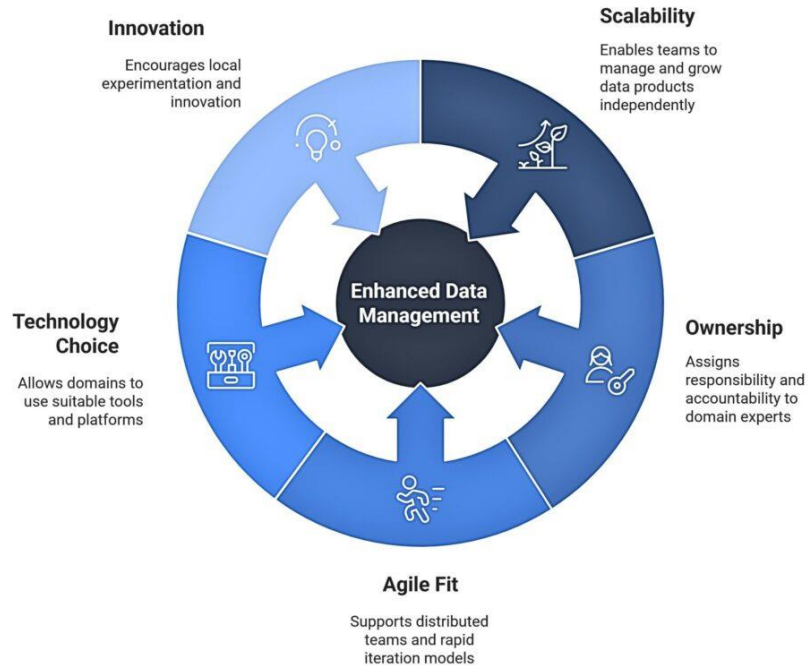
Pioneered by Zhamak Dehghani



DATA MESH PRINCIPLES



Data Mesh Advantage



How Data Modeling Supports Data Mesh Implementation

Effective data modeling in a mesh architecture requires balancing domain autonomy with global interoperability.

external interfaces. Domain-specific modeling languages and tools that integrate with broader governance frameworks become essential for maintaining consistency across the mesh while preserving domain independence.

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Source-https://medium.com/@wannesrosiers/data-mesh-how-far-to-move-in-decentralization-18abb84d1e

The Future of Data Modeling: AI Integration

AI-Centric Modeling

- **AI-Centric Modeling:** Rise of AI-generated schemas, copilots in model creation, and natural language interface for model design.
- **Agentic Workflows:** Self-adjusting, metadata-aware pipelines adapt automatically to schema drift and semantic changes.
- **Cloud-Native Strategy:** Models integrate directly with Snowflake and transformation layers for live, versioned views.

Emerging Data Stack Reshaping Data Modeling

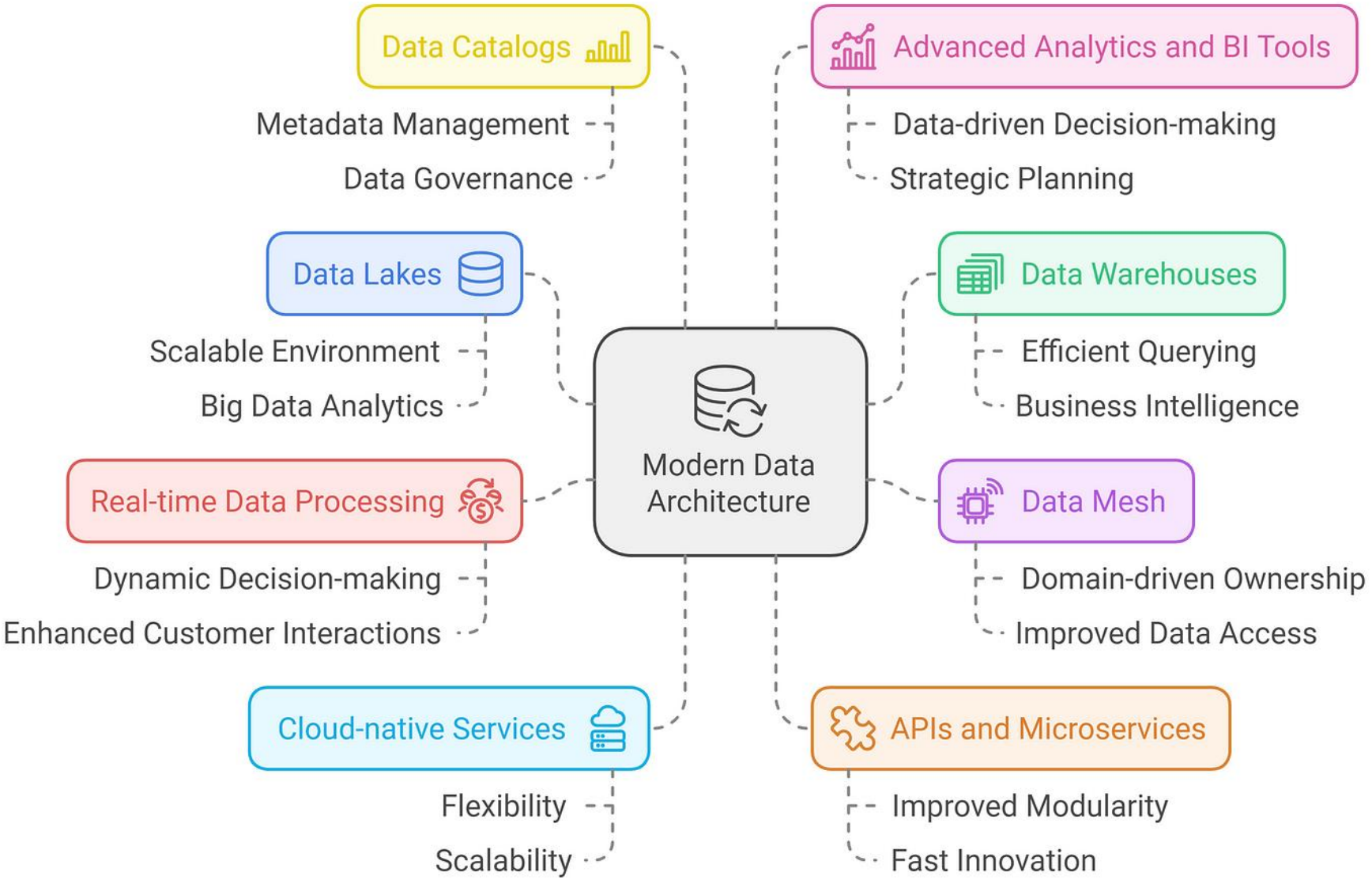

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Image Source-Medium

Snowflake AI Data Cloud

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Snowflake: Built for the Modern Data Cloud

Cloud-Native Architecture & Performance

- Separation of compute & storage
- Scale seamlessly to near-infinity
- Auto-start/stop, auto-scale, per-second billing
- Zero-cost result caching

ELT & Automation

- Snowpipe for real-time ingestion
- Streams & Tasks for ELT orchestration
- Dynamic Tables for continuous transformation

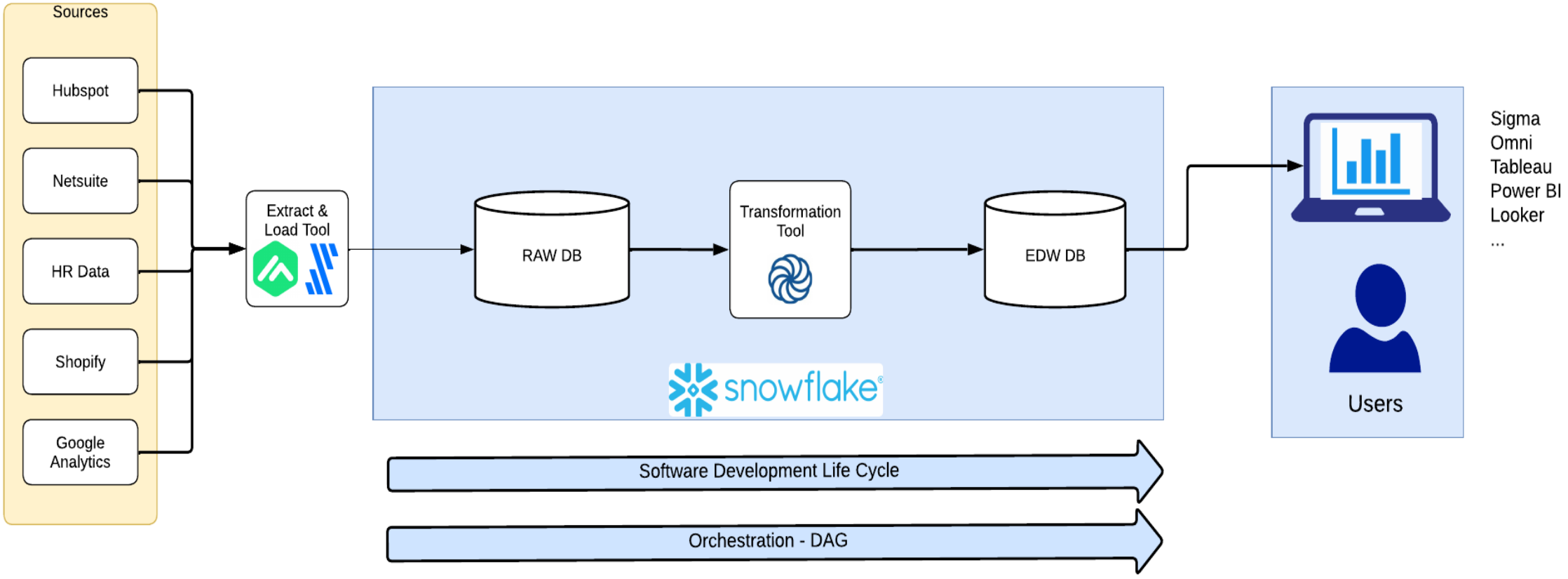
AI & ML in the Warehouse

- Snowpark: Python, Java, Scala UDFs
- Native Python runtime for secure ML
- Cortex AI: LLMs and ML in SQL

Data Sharing & Interoperability

- Secure data sharing without ETL
- Cross-cloud & cross-region replication
- Snowflake Marketplace (3rd-party data)
- Iceberg support for open Lakehouse architecture
- Data Clean Rooms: privacy-preserving joins
- Native support: JSON, Avro, Parquet, XML

Snowflake AI Data Platform



Why Data Modeling Matters to Modern Data Programs

- The business doesn't think in tables—it thinks in **nouns, verbs, and relationships**.
- Data modeling bridges **business understanding** and **technical implementation**.
- Without modeling, we lose consistency, shared definitions, and long-term governance.
- Modern tools like **Snowflake** make modeling even more important—now we can iterate quickly.
- erwin DM supports both **structured collaboration** and **evolving data program needs**.

Building the Modern Data Platform with erwin DM

Top-Down Modeling

- Understand the business first—what are the key entities and how are they related?
- Use conceptual & logical modeling to align across teams

Mock-Up Star Schemas

- Define facts, dimensions, and grains
- Validate business requirements with draft models
- Collaborate with engineers before building

Reverse & Profile RAW Data

- Load source data into Snowflake RAW layer
- Reverse-engineer into erwin
- Use profiling to remove junk columns, add missing PK/FK

Reverse Final Models for QA

- Validate deployed star schemas in erwin
- Catch datatype mismatches, naming issues, or missing conventions
- Use complete compare to iterate without losing diagrams

Using Models to Validate and Communicate Design

- Once transformations are built, we reverse-engineer the physical models into erwin.
- erwin DM helps us:
- Spot red flags: VARCHAR(16MB), missing keys, bad data types
- Check class-word abbreviation suffixes and other naming conventions
- Ensure schema matches design intent
- We iterate with engineers: update → model compare → finalize.
- The final models serve as QA artifacts and communication tools across teams.

Case Study: Aubuchon Hardware

- Family-Owned Chain of Hardware Stores
- *130+ Stores*
- *New Store Acquistions*
- *Addition of Coop relationship with ACE Hardware*
- *Addition of historical data in another ERP.*

- MI9 ERP – Custom loaded over many years
- **BI platform built on Snowflake using erwin DM:**
- Top down logical to learn the business.
- MI9 ERP reverse engineered into erwin DM
- Profiled, then updated for source data comprehension.
- Transformed via dbt into star schema
- Validated in erwin DM for naming and type standards.

Live Demo Ahead!

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Key Takeaways

- Modern cloud requires modern modeling
- Snowflake innovations + erwin modeling = faster, safer delivery
- Real-world wins: Faster Deployments, Fewer Misunderstandings

- Metadata has become the critical connective layer between models and their applications
- Data modeling has evolved from a static design activity to a continuous, collaborative process
- The data mesh paradigm requires modeling approaches that balance domain autonomy with global interoperability
- Modern tools blend modeling-as-code with governance and versioning capabilities
- AI is going to lead the world.

Version 15.0 and Next on AI

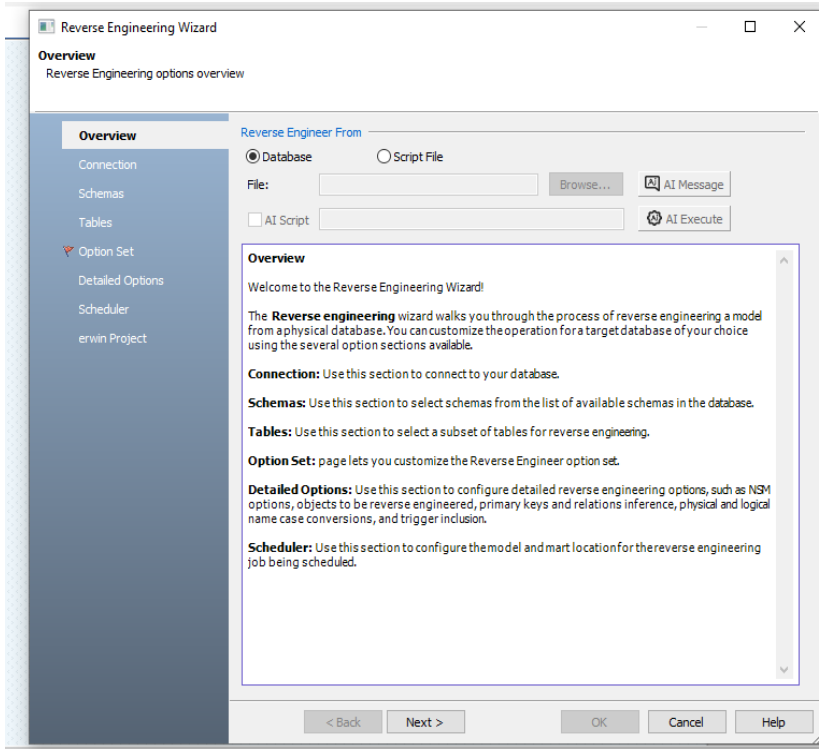
Version 15.0

- **DBT Integration/Connector**
- **Orchestration Integration with Jira**
- **Open API Specification model**
- **DM-DI(DM Biz Term) Enhancements in UI**
- **SSO integration- Entra support**
- **DB Enhancements**
  - Snowflake Dynamic
  - Iceberg-Snowflake
- **ER360 visualization enhancements**

What's coming next..

AI and the Path to Agentic AI

Model generation and DDL script validation



June FY25

Sept/ Oct FY25-26

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Thank You!

Q&A

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V15 Release Notes

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