

Data Modeling with ER/Studio for Data Warehouses

Moving organizational data from legacy systems to data warehouses (such as Snowflake, Synapse, BigQuery, Redshift, and Teradata) is challenging. Organizations must take steps to de-risk this significant undertaking while decreasing the time-to-value. We would argue the most important step is data modeling. This includes understanding the requirements by stakeholders, identifying and understanding all source data and data assets, gaining a complete picture of data lineage, and architecting and documenting a complete picture of what you aim to build and how it will work. Furthermore, modernizing your data warehouse is the perfect opportunity to up your game when it comes to data governance. Through the metadata captured by sophisticated data modeling tools, you will set your organization up for success in this area as well.

WHAT ARE THE CHALLENGES OF DATA WAREHOUSES?

Designing, building, and maintaining data warehouses present a range of difficulties, with the two key flows of understanding the business requirements of stakeholders and translating that to code as well as understanding the diverse and complex data source. Compounding the problem, organizations are dynamic and require a pragmatic and efficient process to handle change.

ISSUES WITH MIGRATING DATA SOURCES

Understanding and migrating existing legacy databases to a modernized system is a complex task that organizations struggle with. Integrating third-party data sources into a centralized data warehouse with no documentation presents further challenges for organizations.

COMPLICATIONS WITH DEFINING DATA STRUCTURES

Organizations face challenges in visualizing connections between entities and achieving alignment with business rules when structuring data in a cohesive format. They also encounter difficulties when creating complex database structures for integration with multiple platforms.

PROBLEMS WITH DEPLOYING STRUCTURES

To translate data models into the structured query language (SQL) and other database languages can be difficult for organizations. This can lead to errors, inefficiencies, and delays in implementing data structures.

TROUBLES WITH MANAGING CHANGE

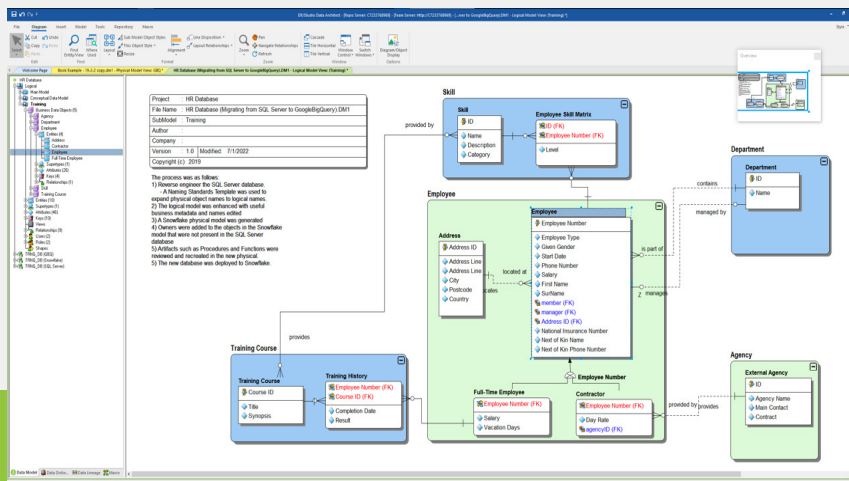
Organizations face difficulties with tracking data structure changes for compliance and prompt adaptation to developing business requirements. They need to manage development stages, historical snapshots, and parallel paths, which all pose challenges.

LACK OF COLLABORATION

Facilitating cross-departmental collaboration on complex data models is a struggle, leading to misalignment, inefficiency, and complications in maintaining consistency during enterprise-scale policy implementation. This can cause confusion and delays.

NON-AGILE PROCESSES

Changing data warehouses too often can lead to inconsistencies, errors, and confusion with improper tracking and management. The ever-changing nature of organizational requirements can cause a lack of alignment if the processes are not agile.



“With ER/Studio, we now have the tools to keep pace with our data warehousing technology.”

Kelly Carrigan
Vice President of Data Warehousing
and Infrastructure for Catalina
(medium marketing services
enterprise in the USA)



ER/Studio is the fastest, easiest, and most collaborative way to build and maintain enterprise-scale data warehouses.

Lorraine Knerr **Vice President of Data Management** for Accolade
(medium healthcare services enterprise in the USA)



HOW CAN DATA MODELING WITH ER/STUDIO HELP?

Data modeling with ER/Studio helps organizations design, build, and maintain data warehouses that are robust and that serve the dynamic needs of the organization. At its core graphical models help understand and communicate data in a form that is business friendly and reduces ambiguity.

CONCEPTUAL DATA MODELING

Stakeholders can create with ER/Studio an abstract representation of the important entities and relationships in a system without concern for the specific details of the implementation. Its benefits for data warehouses include an accurate overview of business processes, and support for data governance and compliance.

LOGICAL DATA MODELING

ER/Studio can develop a detailed representation of the data requirements of a system independent of the database management system. The advantages for data warehouses include improved data integrity and consistency, better data documentation and communication, and enhanced scalability and flexibility.

PHYSICAL DATA MODELING

Translating the logical data model into a technology-specific format with ER/Studio allows it to be implemented in a database management system. This provides data warehouses with efficient database implementation, enhanced performance, scalability, security, and compliance, as well as streamlined database maintenance.

REVERSE ENGINEERING

ER/Studio can analyze existing databases and systems to create data models that reflect their structures. The advantages for data warehouses are better integration and mapping of systems, more efficient comparisons between existing and new systems, fewer data inconsistencies, and faster documentation.

NATIVE CODE GENERATION

By using data definition language, ER/Studio can create executable code that is specific to a particular database system. This benefits data warehouses by facilitating consistency and standardization, increasing accuracy, reducing errors, improving reuse and modularity, and ensuring code compatibility across databases.

CHANGE MANAGEMENT

ER/Studio can manage changes to a data model throughout its lifecycle. The advantages for data warehouses are better accuracy, security, and consistency of data, minimized disruption, reduced risk of errors, more agile adaptation, and improved data governance and compliance.

MODEL VERSIONING

Collaborators can track changes made to the data model over time, manage multiple versions, and support the auditing and visibility of the data model. This helps data warehouses by maintaining a comprehensive record of the data models, enabling rollback, improving reproducibility, and supporting auditing and compliance.

MODEL SHARING

ER/Studio can distribute and make data models accessible to relevant stakeholders. This helps data warehouses via better collaboration and knowledge sharing, reduced duplication, improved data consistency, stronger decision-making and risk management, enhanced transparency, and decreased data fragmentation.

COLLABORATION

Stakeholders can cooperate to design and refine data models with ER/Studio. This improves data warehouses by promoting stakeholder input, generating higher quality data models, streamlining the modeling process, and creating a data-driven culture that includes transparency, trust, and ownership.

SUMMARY

ER/Studio provides comprehensive data modeling, metadata management, built-in data governance, enforcement of standards and guidelines, scalability, flexibility, as well as collaboration and teamwork. That allows organizations to minimize the cost and maximize the value of their data warehouse.

WHAT ARE THE NEXT STEPS?

Experience for yourself how ER/Studio can help you design, build, and maintain your data warehouse by scheduling a product demonstration with an industry expert.

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