

The Value of Data Modeling for the Data-Driven Enterprise

Designing, documenting, standardizing and aligning any data from anywhere produces an enterprise data model to drive business value and underpin governance

Data Modeling: Why It Matters

As it has been for decades, data modeling remains the optimal way to design and deploy new relational databases with high-quality data sources and support application development. But it provides even greater value for today's enterprises, where critical data exists in both structured and unstructured formats and lives both on premise and in the cloud.

That value includes providing less costly and more efficient multi-source data discovery and analysis—through the reverse-engineering and documenting of databases—to underpin and quickly enable large-scale integration, master data management and other initiatives. The ability that data modeling offers to synthesize,

standardize and store data sources, deriving a single design that collects historical data from many disparate designs, also now contributes to business intelligence and analytics consistency and clarity, as well as to reusing analytics artifacts across projects.

Most organizations also have more than one database platform, and data often is stored in non-relational formats. Big Data needs to be incorporated into the data modeling landscape. That's possible when non-relational data sources can be natively designed, deployed, depicted and documented and also integrated with the larger world of relational data. Applied at this level, data modeling accommodates the critical need to support realtime

analytics applications at scale as well as consistency for the purpose of data source analysis.

Finally, one of the most compelling use cases for a strong data modeling approach lies in its connection to the increasingly important and evolving realm of data governance. Today's enterprise embraces data governance to drive data opportunities, including growing revenue, and limit data risks, including regulatory and compliance gaffes. Data modeling solutions that incorporate a controlled central repository of data definitions and provide visibility into where and how properly defined data is to be used are the foundation of solid data governance.

DATA MODELING DEFINED

Data modeling and design is the process of discovering, analyzing, representing and communicating data requirements in a precise form called the data model.

Source: [DAMA International Data Management Book of Knowledge V2](#)

DATA MODELING'S PLACE IN THE DATA MANAGEMENT UNIVERSE

Data modeling is part of an integrated and holistic approach to data management that helps organizations:

- Effectively manage and govern massive volumes of data
- Consolidate and build applications with hybrid architectures, including traditional, Big Data, cloud and on premise
- Support expanding regulatory requirements, such as GDPR
- Simplify collaboration across key roles and improve information alignment
- Improve business processes for operational efficiency and compliance
- Empower employees with self-service access for enterprise data capability, fluency and accountability.

Data Modeling: How to Do It

erwin Data Modeler (DM) has always been at the forefront of helping enterprises realize new advantages from data modeling, originally bringing to the PC an easy and lightweight manner the database design capabilities of heavyweight, mainframe-based CASE tools.

According to IDC, it has a 30% share of the modeling architecture and tools market, and clearly continues to play a critical role as companies transform themselves into agile, data-driven organizations where data is foundational to doing business.

erwin DM's capabilities include:

→ **Business and technical database structures can be visualized through an integrated, graphical model.**

erwin DM has built-in interfaces for more than three dozen database platforms on the market today, and it regularly increases its support for these systems' extended capabilities. It can read the technical formats of each of these platforms and translate them into highly graphical models rich in metadata. Schema can be deployed from models in an automated fashion and iteratively updated so that new development can take place via model-driven design.

→ **End-user BI/analytics are empowered by data source discovery, analysis and integration.**

erwin DM gives business users confidence in the information they use to make decisions: providing a common, contextual, easily-accessible source of data element definitions ensures they are able to draw upon the correct data; understand what it represents, including where it comes from; and know how it's connected to other entities.

They also can rely on basic orchestration to pull in data sources via self-service BI and analytics dashboards to get the answers they're looking for. In the background, the solution has the ability to integrate its models into whatever format is required for downstream consumption.

→ **Business definitions and data-centric business rules can be stored in the model along with technical database schemas, procedures and other information.**

With business definitions and rules on board, technical implementations can be better aligned with the needs of the organization. Using an advanced Design Layer Architecture, model "layers" can be created-with one or more models focused on the business requirements that then can be linked to one or more database implementations. Design-layer metadata can be connected from conceptual through logical to physical data models.

→ **A data model and associated metadata repository is a central source for core definitions and data structures that can be standardized and reused across projects.**

Not only can this help reduce redundancy and "reinvention of the wheel," saving time and money, but it also can help increase quality, as all projects use this common **erwin DM** foundation for data definition and metadata analysis.

By storing models in a central repository in the **erwin DM Workgroup Edition**, conflict resolution, versioning, security, standardization, and model organization and hierarchies all will be addressed, and modeling teams can collaborate to create common objects that can be reused to help create data quality and consistency.

erwin Web Portal provides a simple way for both non-technical and technical roles to view the information stored in the central model repository, providing tools such as web-based internet search and drill-down, model diagram visualization, and "where used" report generation that lets users see how objects interrelate.

→ **Any² (Any Data, Anywhere) strategy enables organizations to rationalize platform inconsistencies and deliver a single source of truth for all enterprise business data.**

Our Any² approach includes on-demand modeling for non-relational databases that offer speed, horizontal scalability and other realtime application advantages. With the addition of **erwin DM NoSQL**, MongoDB NoSQL is just another data source and native NoSQL model structures can be automatically created. Existing MongoDB data can be easily discovered, understood and documented through modeling and visualization, and existing entity-relationship diagrams and SQL databases can be migrated to MongoDB too. Relational schema also will be transformed to query optimized NoSQL constructs.

Another piece of the strategy is delivered via **erwin Safyr Option for ERP**, which makes it possible to pull out real and highly defined data models from packaged applications' data dictionaries and break down data management silos. Companies can use its metadata extraction capabilities to discover and browse complex data structures inherent in ERP applications using business-friendly terms, as well as load sets of metadata into **erwin DM** or export logical model information to the platform.

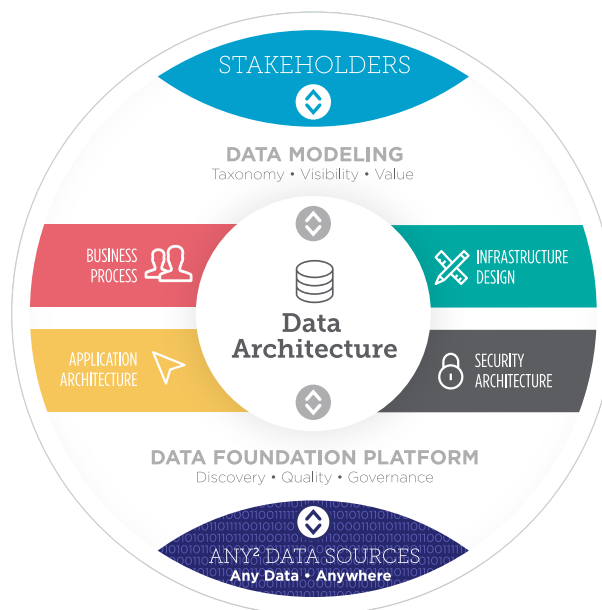
→ **Seamless integration with erwin Business Process (BP) and erwin Enterprise Architecture (EA) improves workflows and planning.**

erwin's Any² approach to designing, documenting, standardizing and aligning any type of data no matter where it is deployed (on premise or in the cloud) drives quality, value and efficiency in all data management initiatives. Well-formed data models imported into **erwin BP**, for example, provide the structure that's needed for putting data into action as part of system interactions and workflows.

Similarly, data models imported into **erwin EA** wrap data in the context of business capabilities, processes and services, applications, organizational structure and supporting infrastructure to depict and enable an easily understood enterprise model. **erwin CloudCore** is erwin's cloud-based platform-as-a-service suite, providing unrivaled speed and ease of use in an on-demand environment for data modelers and enterprise architects.

ERWIN EARNS DATA HONORS

erwin Data Modeler: Four-Time Database Trends and Applications Readers' Choice Awards Winner for Best Data Modeling Solution



erwin DM underlies the transformation of businesses into data-driven organizations.

Data Modeling: Intersection with Data Governance

The capabilities of the **erwin DM** products and associated components reveal a circle of technologies and tools that underpins what truly matters to an agile and adaptable enterprise: data governance.

Data governance is about understanding critical enterprise data within a business context, tracking its physical existence and lineage, and maximizing its security, quality and value. Data models bring to the fore entity relationship diagrams that visualize terms and their attributes and relationships. They act as guides to these terms' data elements in data dictionaries, point to glossaries of data definitions, and manage reference data codes related to terms. They curate where and how these properly defined data elements are being used, so that others can access them for their own projects.

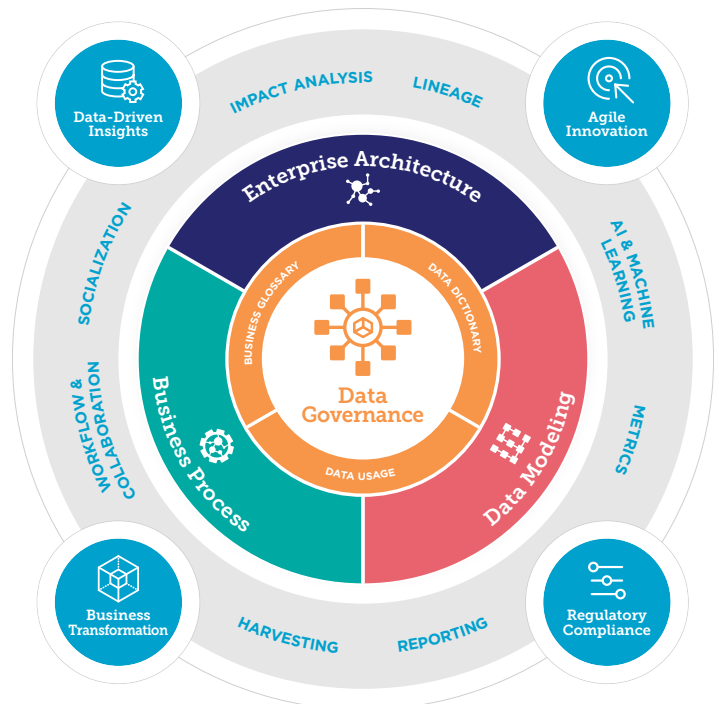
Data governance initiatives ultimately depend on the rigors of a solution like **erwin DM Workgroup Edition**, where a controlled central repository is the means of delivering the standardization required to ensure that nothing un-vetted gets into the data landscape.

In conjunction with **erwin BP**, which reveals all the workflows, business capabilities and applications that use a data element; **erwin EA**, which shows where the element resides within the infrastructure; and **erwin Data Governance (DG)**, which provides data visibility and control across the enterprise to both IT and business stakeholders, the infrastructure is in place to enable the workforce and processes that support actively governing data assets and their alignment to the business.

The entire data governance lifecycle is covered, across all data producer/consumer roles. This

persona-based approach, with everyone—from executives on down—invested in and accountable for data use, creates an **enterprise data governance experience (EDGE)** as opposed to an isolated program managed by IT alone. As embodied in the **erwin EDGE** portfolio of products, IT and business functions are joined to ensure organizational objectives around managing risks and maximizing opportunities are met.

This includes **data impact analysis**. Delivering a visualization of the chain of objects, projects and roles that may be impacted by a change to a single object is, in fact, a critical aspect of data governance. It puts directly in front of the organization the potential risks, advantages and costs of a change as well as empowers it to appropriately plan for a change determined to be worth making. It's the agile way to get things right the first time.



The erwin EDGE is an approach and technology platform for Data Governance 2.0.

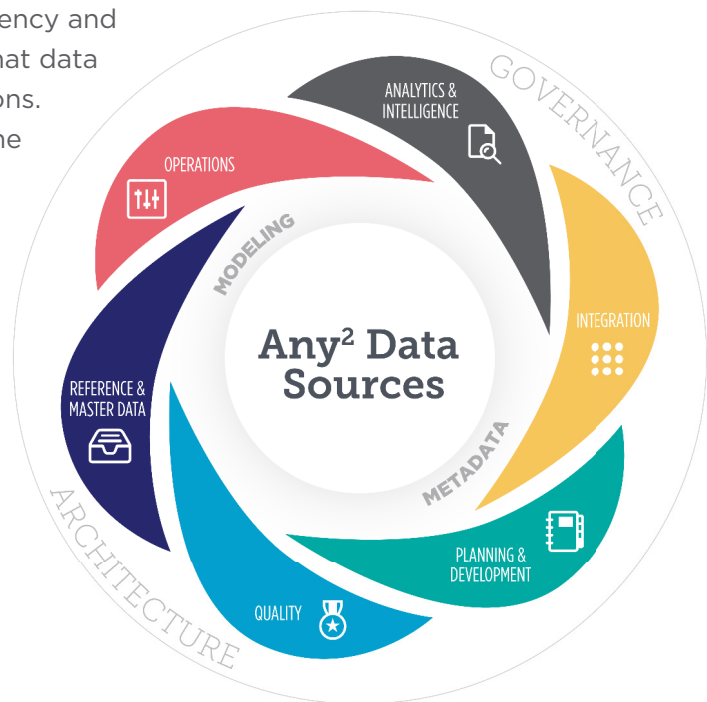
Take Data Modeling to the Next Level

There's a direct correlation between enterprise data fluency and the ability to maximize the return on the opportunity that data represents in optimizing business strategy and operations. The end goal is a foundation and facility that enables the organizational mastery, visibility and agility required to effectively align any and all strategic data assets with the business they serve. Increasing the level of trust the business has in available data will increase the impact that data has on its success.

erwin DM and related solutions are ready to serve on all fronts, driving strategic data use and business value.

CONNECT THE DATA DOTS

Proper data governance depends on capabilities including rigorous data modeling.



Related Products

erwin DM Standard Edition: Conceptual, logical, physical and dimensional model creation and deployment

erwin DM Workgroup Edition: Repository-based data modeler collaboration and model lifecycle

management **erwin DM Navigator Edition:** Read-only access for data model discovery and analysis

erwin DM NoSQL: Rapid app deployment, cloud infrastructure migration and reverse-engineering in an enterprise-class data modeling solution for MongoDB

erwin Web Portal: Web-based collaboration platform to share models and metadata with stakeholders **erwin**

Safyr Option for ERP: Metadata management and model creation for ERP and cloud applications

erwin DG: A SaaS solution enabling all organizational stakeholders to discover, understand, govern and socialize data assets to mitigate risks and realize business goals

erwin Collector: Automatically harvests and aggregates operational data from a variety of enterprise systems, including ServiceNow and RSA Archer, into the erwin DG data dictionary

erwin EA: Complete and highly customizable set of on-premise enterprise architecture tools for integration into the customer environment

erwin EA Agile: Full-featured, cloud-based set of enterprise architecture tools using industry frameworks

erwin CloudCore: Cloud-based hosting services for erwin data modeling and enterprise architecture solutions

erwin BP: Business process modeling software for visualizing system interactions, business processes and organizational hierarchies



erwin, Inc. provides the only unified software platform combining data governance, enterprise architecture, business process and data modeling. Delivered as a SaaS solution, these technologies work together to unlock data as a strategic asset so all enterprise stakeholders can discover, understand, govern and socialize data to mitigate risk, improve organizational performance and accelerate growth. For more than 30 years, erwin has been the most trusted name in data modeling and its software foundational to mission-critical data programs in government agencies, leading financial institutions, retailers and healthcare companies around the world.

Connect with us
at **erwin.com**



© 2018 erwin, Inc. All Rights Reserved. All trademarks, trade names, service marks, and logos referenced herein belong to their respective companies.