

WHITE PAPER

Teradata® Industry Data Models



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Overview

In today's marketplace, the ability to gather more data and turn insights into real results the fastest—is a competitive necessity. To compete in this new era—the age of intelligence—enterprise users need answers to these critical questions:

- What data do I have?
- What data do I need?
- Where are the data elements?
- Where did they come from?
- Are they reliable?
- How fresh are they?
- What is their level of quality?

Integrated Data and Analytics Environment

It's generally accepted that today's integrated data and analytics environment provides for decision support within the organization. By adding the word "integrated", that environment is thought of as—or expected to become—reflective of the entire organization. Before continuing, let's discuss the environment that Teradata refers to when we say integrated data warehouse (IDW). We define an IDW as an area where the data of the business, or the enterprise, is centrally integrated, centrally stored, and accessed through common business-defined methods. We believe, and our customers have shown us, that value is increased dramatically when the organization can access all of the data, all of the time—to deliver analytics that matter.

Industry Benefits and Challenges

Businesses of all sizes and across different industries are discovering significant benefits by implementing an IDW. IDWs provide an excellent approach for transforming the vast amounts of data that exist in their enterprises into useful and reliable information that provides answers to their questions and supports the decision-making process. However, mention of an IDW often suggests big, complex, lengthy, and expensive implementations.

The Teradata® Industry Data Models (iDMs) and closely related Industry Analytic Schemas (iAS) ensure that your implementations are smoother, faster, and not beset with these challenges.

Unique Teradata Offers

Teradata offers robust industry data models for a wide number of industries, including: communications, media and entertainment; financial services; healthcare and life sciences; insurance; retail; travel and transportation; and manufacturing. Teradata iDMs, which exist within Teradata Vantage, the powerful analytics platform from Teradata, help an enterprise cope with abundant data, compressed business cycle times, and constant economic pressures.

Building an IDW can be a daunting task. Conventional wisdom says it is a time-consuming, complex, resource-intensive activity to complete. Why not get a jump start on that process with a boost from a Teradata iDM?

Each Teradata iDM provides rapid time-to-value rewards for leading enterprises to leverage the customer best practices and industry expertise of Teradata to accelerate data warehouse planning, design, and implementation. Because as every business can agree—time is money.

Teradata Industry Data Models (iDMs)

Just as the name states, Teradata iDMs are models of the enterprise data, data relationships, topic areas, and business rules relating to enterprise IT. Our industry data models offer an integrated, single view of the business that allows business and IT users to communicate using a common language, about information needs and systems. The industry data model is a picture of all of the pieces of information necessary to run the business.

Generally speaking, a model is an abstraction and reflection of the real world. Modeling enables us to visualize what we cannot yet realize. It is the same with data modeling. Diagrammatic tools are used in the analysis of business requirements and in the design of the resulting data structure.

Actually, data are simply a record of all business activities, resources, and results of the organization. The data model is a well-organized abstraction of that data. So, it is quite natural that the data model has become the best method to understand and manage the business of the organization. Without a data model, it would be very difficult to organize the structure and contents of the data in the data warehouse.

When building an IDW, you will always come to the point where a decision is needed about how the data are to be structured to support the analysis and decision-making processes. This is, after all, one of the most fundamental concepts in data warehousing and what differentiates it from the more traditional operational database and decision support application building. The structure is determined through data modeling. Everyone will have to develop a data model; the decisions to be made are: how much effort to expend on the task, and what type of data model should be used.

A data model addresses the level of effort and investment. From a cost versus benefit standpoint, it is a win-win situation. At the same time expenditures are slashed (because data only has to be collected once), a single integrated view begins to take shape. Enterprises save money because extra resources do not have to be spent, and data marts do not have to be built. As insights are amassed from various sources, data can be related in previously unconsidered ways to glean additional insights. The models facilitate rapid understanding and alignment of the business needs, and support ‘what if’ analyses of the different approaches. As the data warehouse evolves, the data maturity roadmap assists in identifying the next most valuable data to source.

An Analogy for Data Models

Logical/physical data models, and data modeling in general, can be quite complex—in fact, part of the value of a data model is its ability to mask the technical complexity from business users. The following analogy uses a familiar picture (i.e., the diagram of a subway or metro system) to illustrate some of the characteristics of a data model. In this example, we will use a map of the New York City subway system. (See Figure 1).



Figure 1. New York City Subway System

A subway map shows an abstract representation of actual trains, tracks, stations, schedules, services, and timings that provide public transportation—the map is a model.

The map, as a model, shows the user how the trains run—not how the physical tracks actually run. And yet, the two are closely related. The subway model provides capabilities similar to a data model. It provides a:

- Translation of business rules.
- Model to align business and IT.
- Plan for technical staff to build information systems for business users.
- Consistent enforcement mechanism.
- Method to increase understanding and interpretation of business information.
- Method to achieve data integrity, integration, and extensibility.
- Way to manage and communicate complexity.

Just as the analogy shows, a data model is a:

- Blueprint that visually communicates how information is organized within the organization.
- Framework for enterprise business intelligence.
- Foundation for a powerful and flexible integrated data warehouse.

Teradata Industry Data Model Benefits

The following sections highlight some of the features and benefits that can be realized by implementing a Teradata iDM.

Easy to Grasp

Teradata iDMs are easy to understand by both business and technology users. The models and documentation use standard business language and terms that are familiar to users—instead of the theoretical terms used in competitors’ data models.

Enterprise Decision Making

If one of the purposes of the IDW, as supported by the iDMs, is better decision making, those resultant decisions are only as good as the data upon which they are based. The iDM approach ensures better data is used for decisions. Data is cleanly stored once with proper integration, access controls, quality checks, full attribution, and integrity constraints. Not only does this mean better data for fact-based, data-driven decisions—it means greater value for the organization as it seeks to turn its information assets into decisions and actions. Building on the IDW foundation enabled by the industry data models, Teradata’s closely related Industry Analytic Schemas (iAS) then allow the rapid build-out of BI/OLAP and advanced analytics.

Industry Focus

As the recognized worldwide leader in data warehousing and analytics, Teradata has worked with many of the Global 2500 firms across a variety of industries. Its consultants are steeped in industry expertise that is shared with clients and enhanced through joint projects with them.

This expertise is captured in each industry-specific data model and conveyed through client engagements. Clients derive value from this approach because they are able to use Teradata's personnel, skills, accumulated knowledge, and extensive designs to get results faster and with less effort than homegrown alternatives.

In addition, the Teradata iDMs, as part of the Vantage analytics platform, are built around the concepts of storing full details about enterprise data (details about the data) and using the details of operational transactions (detailed data) to provide the foundation for enterprise analytics and enterprise intelligence.

Load Once, Use Many Times

Each Teradata iDM supports the concept of load once and use many times, which means that facts are collected in one central location and made available for multiple uses across the enterprise. Two benefits come from that action. First is that the cost of harvesting and cleansing the data is only incurred one time. The second is that a single view of the enterprise can be supported. At the same time, expenditures are slashed (because data only has to be collected once) and a single enterprise view takes shape. Enterprises save money because extra resources do not have to be spent and because new data marts are not needed. Additionally, data reuse and access allows concurrent initiation (rather than serialization) of multiple projects with less risk.



Single, Integrated View

A data warehouse is subject-oriented according to its formal definition—this means the enterprise lines of business have multiple subject areas that need to be integrated for maximum benefit. Imagine the issues of dealing with multiple definitions and data values for customer or product. The Teradata iDM addresses this by using an enterprise-wide view of data, architecture, and scope.

Time to Value and Time to Usage

The Teradata iDMs accelerate the implementation of an IDW, but speed is supplemented by getting it right at the right level of resource investment. By using the models, an organization generates value from its data warehouse sooner (shorter time to value) and adds value by increasing the access and usage across the organization sooner (time to usage).

Specialized Skills

The Teradata iDMs are unique and valuable because they allow an organization to leverage the expertise of Teradata to get a head start on data warehouse design, construction, and use. An organization that undertakes its own model development efforts needs a unique set of skills that might be expensive or difficult to obtain. These skills include:

- Broad industry experience at each level.
- Enterprise architecture expertise.
- Senior data modeling expertise.
- Ability to integrate the efforts of data modelers, architects, and database administrators.

Improved Communication Between Business and IT

The documentation surrounding the Teradata iDMs captures the intentions of business and IT users. In doing so, the models reduce the possibility of costly miscommunication and misunderstandings. There is real value in aligning the three directions of communication (i.e., up the organization structure, down the organization, and across the enterprise).



Models are Representations

A model, any model, is a representation or mock-up of something. Each Teradata iDM is a model that shows how the enterprise business and technology architectural underpinnings might look. This prospective view is valuable because it allows decision makers to assess the utility of the architecture before committing resources. Value is achieved with less effort and with a lower investment of people, time, and money.

Rigorous Analysis and Thinking

Building enterprise models requires disciplined, thorough, and unambiguous analysis about the current and future data needs of the enterprise. Teradata experts have already done this analysis and included the results in our industry data models. Enterprises can benefit from this clarity of purpose because they do not have to worry about incomplete, random, confusing, or conflicting designs that might have sprung up from other approaches, for example: data mart efforts, no integrated data model, or incoherent frameworks.

Think Big, Start Small

Data warehouse projects can be large undertakings, but with the framework of each iDM, they can be broken into manageable projects. The framework allows the enterprise business and IT planners to think big in their vision for the goals of the data warehouse—while also starting small in selecting manageable areas upon which to focus. The Teradata iDMs adapt to the enterprise as business conditions change.

Time, Resources, Scope

Most technology managers understand the three main levers they can alter to affect the outcome of a project—time, resources, and scope or content. Often, these levers, which have associated costs and risks, are used when a project gets into trouble. It is easy to understand extending the time, putting more people and resources onto a project, or reducing the scope of tasks to achieve success. Using a Teradata iDM infuses best practice approaches into the data warehouse design so these levers do not have to be used as frequently. Imagine the benefits of not having to resort to such tactics.

Reduced Risk

Conscientious enterprise management looks to minimize risks in technology investments. Using a Teradata iDM requires less invention (through reuse), less trailblazing, less work, and fewer changes than alternative approaches. Less disruption, effort, work, and risk leads to fewer errors, which also enhances value by minimizing the costs of rework.

Less Maintenance and Rework

Any time a common, integrated approach (as embodied in each industry data model) is used, there is the assurance that less effort will be required to maintain and extend underlying systems. This is especially true for IDWs. As stated earlier, time is money. Consequently, less time, effort, and resource expenditures for maintenance, enhancement, and extensions yield higher value. This allows the enterprise to shift to a mode of anticipating business needs rather than reacting to changes. In addition, when adaptations are needed, the Teradata iDMs help avoid costly, error-prone redesigns.

Customization and Flexibility

Each Teradata iDM is an excellent base from which an enterprise can evolve and extend the value of its data warehouse in unique ways. A flexible model provides value by allowing an enterprise to customize the initial models to its own business and industry (perhaps across divisions or geographies). Using a Teradata iDM allows enterprises to define their own data and infrastructure—all while leveraging the expertise of Teradata.

Extensive Benefits

Examination of these topics shows numerous benefits that can be realized by implementing Teradata iDMs. Who else would you select to do this but the worldwide leader in data warehousing?

Proven Value and Expertise

What makes Teradata different from the competition when it comes to data warehousing? It is the business value and the industry expertise that we provide. We can help your business and IT functions collaborate and agree on the requirements for meeting business objectives and managing data assets better. With more than 40 years of experience, Teradata is the market leader in data warehousing, and we have built that expertise, best practices, and intellectual property into our tools. In addition, we have long supported integrated, centralized data warehouses under some of the most demanding environments.

Leadership You Can Trust

Teradata consultants understand the problems and critical success factors associated with data warehouses better than anyone else in the industry. They can work with you to prioritize and translate your business issues into an effective data warehouse strategy that delivers the strongest ROI. Through data warehousing, BI reporting, analytic modeling, customer management, financial management, and other applications, Teradata can guide your data model development and help you plan and develop applications that will support your growing and evolving business needs.

About Teradata

Teradata leverages all of the data, all of the time, so you can analyze anything, deploy anywhere, and deliver analytics that matter. By providing answers to the complexity, cost and inadequacy of today's analytics, Teradata is transforming how businesses work and people live.

Get the answer at Teradata.com.

For More Information

To find out more about how Teradata industry data models can help you align analytical capabilities across your organization, contact your local Teradata representative or visit Teradata.com.